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OF THE

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OF THE

MEDICAL SCIENCES.

NO. CXLIII. NEW SERIES.

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THE

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OF THE MEDICAL SCIENCES

FOR JULY 1876.

ART. I.—*An Account of some of the Earlier and hitherto Unpublished Cases of Ligations of Arteries performed at the Pennsylvania Hospital between* 1802 *and* 1820; *with a revised Table of the Arteries which have been tied, and the mortality following this operation in that Institution.* By THOMAS G. MORTON, M.D., one of the Attending Surgeons.

IN the number of this Journal for April, 1876, I published the histories of all the ligations of arteries performed at the Pennsylvania Hospital from 1868 to 1875, inclusive; with a table of all the arteries which had been tied in that institution during the past forty years. I then stated that "previous to 1835, it does not appear from the hospital records that any large vessel was tied;" this statement I find is not correct, for, within the past few days, by a mere chance I came across in the library of the Hospital a very interesting old manuscript "Case Book," which had never been catalogued, and the existence of which was unknown to my colleagues and myself, and I presume also to the late Dr. Geo. W. Norris, as no mention of the operations upon the arteries therein recorded is to be found in his "Tables of Ligations of Arteries." In the case book referred to, I have found a number of cases of arterial ligations; a brief account of these I have thought well to publish, in order that the series of hospital cases shall be as complete as possible. I have also added a note of a successful ligation of the external iliac artery, at the hospital, being the first operation upon this vessel performed in this country, and reported by Dr. J. S. Dorsey in his Elements of Surgery.

In January, 1869, my colleague, Dr. Wm. Hunt, tied the femoral artery

for a traumatic aneurism of this vessel, but I was unable to obtain any reliable notes of the case at the time of the publication of my paper; since then Dr. Hunt has furnished me with his original notes, which had been mislaid. Previous to the spring of 1869, there was no regular system at the Pennsylvania Hospital of note taking, so that considerable difficulty has been experienced in collecting the cases which have been recorded:—

CASE 1. *Traumatic Aneurism; Ligation of the Brachial Artery; Recovery.*—John S., a mariner, aged 24, was bled by a sailor in the basilic vein about a week previous to admission on August 3, 1802. The hemorrhage after this operation was profuse. When admitted no union had taken place in the wound, and the hemorrhage was only prevented by a piece of sheet lead; Dr. Coxe made an incision three inches in length, exposed the artery, and applied silk ligatures above and below the wound in the vessel; the ligatures separated on the fifteenth day. Oct 20. Discharged well.

CASE 2. *Traumatic Aneurism; Ligation of the Brachial Artery; Recovery.*—Mary E., aged 25, being slightly indisposed in July, was bled by a farrier in the basilic vein in the left arm; the hemorrhage was with difficulty suppressed, but by the fourth day the wound had healed; a week afterwards a pulsating tumour was discovered; this gradually enlarged; on August 29, 1802, she was admitted into the hospital. Dr. Physick cut down upon the tumour, and found the artery opened into the sac; the brachial above and below was tied with ligatures of "bobbin;" in fifteen minutes there was pulsation at the wrist, on the twelfth day the ligatures separated. Discharged, cured, September 19th.

CASE 3. *Popliteal Aneurism; Ligation of the Femoral Artery; Recovery.*—Henry B., aged 35, a blacksmith, was admitted Feb. 4, 1803, with popliteal aneurism of the left leg. The first symptom was a violent pain in the ham in July, 1802. At the time of admission the tumour projected five inches from the popliteal space. The femoral artery was tied with a strong ligature by Dr. P. S. Physick; "at different times after the operation the heat of each limb was examined by a thermometer, but the temperature was the same in both." The ligature separated at the end of the fourth week, and the patient was discharged cured March 5, 1803, the tumour having almost disappeared.

CASE 4. Henry B., aged 35 (see Case 3), was re-admitted June 7, 1804, with an aneurism of the popliteal artery of the right limb; the femoral was successfully tied by Dr. Physick, and the patient was discharged cured July 13th.

CASES 5 and 6. *Compound Fracture of the Ankle; Amputation of the Leg; Hemorrhage; Ligation of the Femoral Artery; Recovery.*—J. Z., a porter, aged 31, of drinking habits, was admitted July 31, 1806, with a crushed ankle. Dr. Wistar the next day amputated the leg; on Aug. 7th mania à potu developed, and on the 10th a violent hemorrhage occurred; on the 11th and 12th other hemorrhages followed, when a large needle was passed deeply into the muscles, and made to include a considerable portion of the muscular flesh wound around the part from whence the blood seemed to flow, this controlled at the time the hemorrhage; bleeding came on in half an hour, when the femoral was tied. On the 25th, hemorrhage to the extent of four ounces came from the region

of the ligated femoral. On the 26th, Dr. Wistar laid bare the femoral artery higher up, and tied the vessel in two places, and divided the artery. October 1st, lower ligature taken away. October 4th, second ligature removed. December 31, Dr. Physick removed about twelve inches of the femur which, with the knee-joint, had become necrosed; the patient was discharged May 2, 1807, cured.

CASE 7. *Inguinal Aneurism;*[1] *Ligation of the External Iliac Artery; Recovery.*—Alex. P., aged 30, much given to violent exercise, was admitted August 14, 1811, with aneurism of the right groin, which had been growing two years, and was situated immediately under Poupart's ligament, and measured 4×5 inches. The skin on the tumour was thin and discoloured. The external iliac artery was tied high up. On the 14th day the ligature separated, and patient was discharged quite well November 16, 1811.

CASE 8. *Aneurism of Anterior Tibial Artery; Recovery.*—Jacob T. was admitted July 25, 1820, with an aneurismal tumour of the leg at the ankle, which followed after a severe blow from a billet of wood, about six months before. Dr. Parrish tied the anterior tibial artery about the middle of the leg August 5, 1820; two ligatures of catgut were applied, and the vessel was divided between. On October 7th patient was discharged cured.

CASE 9. *Popliteal Aneurism; Ligation of the Femoral Artery after the Sac was opened; Death.*—George S., aged 30, was admitted September 18, 1820, with a large tumour of the ham, in which there was an obscure fluctuation but no pulsation. September 23d, Dr. Hewson opened the tumour, which was found filled with blood; this was removed, and when the tourniquet was loosened a copious flow of blood followed. The femoral was then tied in two places with silk ligatures, and the vessel was divided between them; arterial blood still continuing to flow from the sac, it was stuffed with lint. On the 27th a fierce gush of blood from the sac terminated the patient's life. An examination showed a small aneurism of the popliteal artery, which had burst, throwing its blood into the surrounding structures.

Traumatic Aneurism of Femoral Artery; Ligation of Vessel above and below the Sac; Death from Pyæmia on the 33d day.—Wm. McN., admitted into Pennsylvania Hospital, January 8, 1869. Six weeks before, he was stabbed through lower portion of femoral artery. Was treated with pressure and position, but probably got about too soon, for, upon walking, he felt something suddenly give way with a crack. A large pulsating tumour formed, which threatened to burst through the skin.

9*th*. After consultation, Dr. Hunt tied the femoral well up in Scarpa's triangle. The tumour was then opened freely and large masses of clot were turned out. A ligature was placed on the vessel below the wound. There was still some bleeding, and a third ligature was then applied also below the wound in the vessel. This completely controlled the hemorrhage. The patient got on well until the 18th, when secondary hemorrhage occurred. This was controlled by acupressure pins. On the 20th the patient had rigors and another slight hemorrhage which was controlled by pins. Pyæmia now set in. There was no return of bleeding. Death occurred February 11, 1869.

[1] Dorsey's Elements of Surgery, vol. ii.

Table of Ligations of Arteries at the Pennsylvania Hospital.

No.	Operator.	Date.	Sex.	Age.	Side.	Artery ligated.	Disease or injury.	Result.	Cause of death.	Day Ligature separated.
1	Coxe	1802	M.	24	L.	Brachial	Traumatic aneurism	Cured	.....	15th
2	Physick	1802	F.	25	L.	Brachial	Traumatic aneurism	Cured	.....	12th
3	Physick	1803	M.	35	L.	Femoral	Popliteal aneurism	Cured	.....	28th
4	Physick	1804	M.	35	R.	Femoral	Popliteal aneurism	Cured	.....	....
5	Wistar	1806	M.	31	..	Femoral	Hemorrhage after leg amputation	.....	.....	18th
6	Wistar	1806	M.	31	..	Femoral 2d time	Hemorrhage after femoral ligation	Cured	.....	10th
7	Dorsey	1811	M.	30	R.	External iliac	Inguinal aneurism	Cured	.....	14th
8	Parrish	1820	M.	..	..	Anterior tibial	Aneurism	Cured	.....	....
9	Hewson	1820	M.	30	..	Femoral	Popliteal aneurism	Died	Hemorrhage	....
10	Randolph	1836	M.	59	R.	Common carotid	Varicose aneurism	Died	Congestion of brain day after operation	....
11	Norris	1838	M.	32	L.	Femoral	Aneurismal tumour of leg	Cured	.....	17th
12	Peace	1841	M.	38	R.	External iliac	Inguinal aneurism	Cured	.....	30th
13	Peace	1842	M.	36	R.	Common iliac	Inguinal aneurism	Cured	.....	35th
14	Peace	1844	M.	46	R.	Common carotid	Hemorrhage	Died	On 31st day from hemorrhage	12th
15	Norris	1846	M.	35	L.	Femoral	Popliteal aneurism	Cured	.....	26th
16	Fox	1848	M.	24	R.	External iliac	Inguinal aneurism	Cured	.....	17th
17	Fox	1848	M.	49	R.	Common carotid	Carotid aneurism	Cured	.....	20th
18	Norris	1852	M.	42	R.	Femoral	Popliteal aneurism	Cured	.....	21st
19	Morton	1864	F.	36	R.	Common carotid	Orbital aneurism	Cured	.....	17th
20	Morton	1865	M.	26	R.	Femoral	Femoral aneurism	Cured	.....	16th
21	Morton	1866	M.	51	L.	Subclavian	Axillary aneurism	Cured	.....	18th
22	Hewson	1866	M.	42	L.	Femoral	Femoral aneurism	Cured	.....	21st
23	Hewson	1867	M.	51	R.	Common carotid	Innominate aneurism	Died	On 12th day from serous effusion of the lungs	....
24	Morton	1867	M.	57	R.	External iliac	Aneurism of profunda and femoral	Died	3d day from peritonitis	....
25	Morton	1867	M.	21	R.	Femoral	Arterio-venous aneurism	Cured	.....	8th
26	Morton	1867	M.	24	L.	Internal iliac	Pulsating tumour of buttock	Cured	Afterwards died of malignant disease	22d
27	Hunt	1868	F.	28	R.	Common carotid	Gunshot wound of neck	Cured	.....	28th
28	Morton	1868	M.	37	R.	Subclavian	Railroad crush	Died	Hemorrhage	....
29	Morton	1868	F.	66	L.	Axillary	Wound of brachial	Cured	.....	8th
30	Hunt	1869	M.	..	..	Femoral	Traumatic aneurism	Died	Pyæmia	....
31	Hewson	1869	M.	25	..	Femoral	Popliteal aneurism	Cured	.....	....
32	Morton	1869	M.	27	L	Common carotid	Hemorrhage	Died	Rupture of jugular vein	....
33	Levis	1872	M.	26	L.	Brachial	Incised wound and secondary hemorrhage	Cured	.....	....
34	Morton	1873	M.	30	R.	Femoral	Elephantiasis Arabum	Cured	.....	21st
35	Morton	1873	M.	30	L.	Femoral	Popliteal aneurism	Cured	.....	10th
36	Hewson	1874	M.	40	R.	Femoral	Gunshot wound of femoral artery	Died	Gangrene and exhaustion	....
37	Levis	1874	M.	48	L.	Femoral	Popliteal aneurism	Died	Phlebitis	....
38	Morton	1874	F.	23	L.	Common carotid	Supposed intra-cranial aneurism	Died	Cerebral anemia	....
39	Morton	1876	M.	43	L.	Common carotid	Pulsating orbital tumour	Died	Serous apoplexy	....

* February, 1876, continues well.

Table showing the Mortality after the Ligation of Arteries.

Artery.	Cured.	Died.	Total.
Common carotid	3	6	9
Subclavian	1	1	2
Axillary	1		1
Brachial	3		3
Common iliac	1		1
Internal iliac	1		1
External iliac	3	1	4
Femoral[1]	12	4	16
Anterior tibial	1		1
	26	12	38

ART. II. — *A Clinical Study on Herpes Zoster.* By L. DUNCAN BULKLEY, A.M., M.D., Physician to the Skin Department, Demilt Dispensary, New York, etc.

FOREMOST in the rank of diseases affecting the skin, which may with measurable propriety be attributed to the influence of the nervous system, stands herpes, in its various forms and phases, and, central in the entire group, herpes zoster, zona, or shingles is recognized as intimately associated with direct lesions found *post-mortem* in the nerve elements related to the portions of skin affected. I will not do violence to the knowledge or experience of my readers by entering either into the ordinary clinical history of, or the microscopical conditions observed in this interesting disease, which are familiar to all, but will at once proceed with the history of a case of herpes zoster, which exhibits certain interesting and unusual features, and which has given rise to the thoughts herewith presented. I will reserve for another occasion a discussion of the varieties of herpes and their relations to each other.

I may premise that perhaps the most interesting feature, to many, in the case presented, is the history of the large glandular swelling in the neck on the same side as the herpes, and its rapid and complete disappearance under the internal use of arsenic. For the notes of this portion I am indebted to my friend, Dr. V. P. Gibney, under whose care the patient was at the time, and who kindly referred him to me on the appearance of the skin lesions.

John M., aged 73, on September 3, 1875, presented an extremely emaciated appearance, and exhibited an enormous tumour, located in the right cervical region anteriorly, extending from the angle of the jaw downwards, overlapping the clavicle; laterally it reached from the median line

[1] Same vessel tied twice. See Case 5.

(at the pomum Adami) to within an inch or so of the acromion process. It was hard to the feel, the integumental covering was markedly discoloured, and the veins running through it large and tortuous.

The history was that it began almost imperceptibly, no cause being known, and was of comparatively recent origin; he was living in a damp basement, and the hygienic surroundings were lamentable. The case was sent to Dr. Frank Hamilton, who considered it a malignant growth, inclining strongly towards the diagnosis of "lympho-sarcoma." Removal was contra-indicated, he thought, by the age of the patient (over 70), his wretched cachexia, and the unfavourable habitation. It was agreed to make use of arsenic internally, and a change of residence was urged. He received the liquor potassæ arsenitis, five drops thrice daily. On October 18th, six weeks and a half later, he was seen for the second time, and the change in his condition was so great that he was hardly recognized by Dr. Gibney. The tumour was at least three-quarters smaller, the general health good, and the old man seemed rejuvenated. He had taken the Fowler's solution regularly, and had recently succeeded in moving out of the basement to a floor above ground. The arsenic was ordered to be continued, and seven weeks later, December 8th, he again called and stated that the tumour had been gone for six weeks, and that he had discontinued the use of the arsenic since Nov. 1. It was then difficult to detect even a trace of the tumour. At this visit he called attention to the herpes zoster occupying the right arm, and was recommended to my care.

I find on my notes of the case that he appeared to be at that time rather uncommonly active and well preserved for one of his years, and that very careful examination failed to detect any tumour on its former site, but that there appeared to be a very slight thickening over the extent, perhaps, of two inches just about the centre of the space between the ear and the acromion process of the right side; this gave rather the feeling of a fatty deposit just beneath the skin, but not of any very great thickness.

The arm of that side (right) was the seat of a very abundant and rather peculiarly arranged eruption of herpes zoster. The chest, front and rear, was entirely free from eruption, there being not even any red or tender spots, sometimes the evidence of aborted eruptions—the surface of the thorax was healthy. The eruption began at the back of the shoulder, but quite low down, at least an inch and a half below the end of the humerus, and at about the same point, or a little lower down, on the anterior aspect of the arm. The groups here and elsewhere were pretty thickly set, and the inflammatory action was severe, as the vesicles here and also on the arm were large and flat, and many of them had run together, forming large, flat, bullous masses. The eruption wound around the arm, from behind forwards, in a band of about two inches in width, following closely the course of the cutaneous branch of the musculo-spiral nerve. Passing thus around from the back to the front of the arm, the lower portion of the upper arm, and the entire anterior and outer aspect of the forearm were covered with two or three bands of vesicles, irregularly traced and often touching, so that about one-third of the entire circumference of the limb was covered by the eruption.

Upon the hand the disease occupied also the radial aspect and extended down even to the tips of the thumb and forefinger; the pain in the thumb was so great as to keep the patient from sleeping. The eruption appeared to be in about the fourth or fifth day, and the clinical history corresponded to this. The patient was given phosphide of zinc with nux vomica, and

did well; but the further history of the case does not concern us at present.

A careful study of the distribution of this eruption as here recorded, in its relations to the distribution of the cutaneous nerves of the part, renders the conclusions inevitable that there must be some connection between the two. I am aware, of course, that the observation of a relation of the location and arrangement of the skin lesions of herpes zoster to nerve distribution is no new matter, but the observations in regard to this, if I mistake not, have hitherto been drawn largely, if not entirely, from the distribution of the eruption on the chest, abdomen, and head, where the nerve tracts are more evident. In tracing it in this instance on the arm it is with the further view of seeking an etiological factor in the case before us, and of assisting thereby in a study of the etiology of the disease.

A comparison, then, of the distribution of the eruption with that of the cutaneous nerves, as given by Gray and Sappey, shows that the lesions were entirely confined to the regions innervated by the circumflex, musculo-spiral, musculo-cutaneous (or external cutaneous), median, and radial nerves. Thus the integument of the upper part of the arm, front and rear, up to within a short distance of the head of the humerus, is supplied by the circumflex, in its anterior and posterior branches, over which were groups of vesicles; a band of vesicles followed directly the course of the musculo-spiral nerve, twisting around from behind forwards; the mass of the eruption on the arm and forearm occupied the tract of the external cutaneous nerve along the anterior or radial aspect of the limb, even on to the thumb, which receives cutaneous filaments from this nerve; finally, the radial nerve sends branches to the skin of the back of the thumb and forefinger, and the median nerve to the inner surfaces of the same, all of which parts were also sprinkled with vesicles. These latter parts were the seat of the most pain, which was here very severe.

Tracing now these nerves to their origin, we find the musculo-spiral (from which the radial nerve is given off) and the circumflex nerves coming from the posterior cord of the brachial plexus, and the musculo-cutaneous (or external cutaneous), together with the median nerve, is formed from the outer cord (the median receiving also a branch from the inner cord). These two cords of the brachial plexus, the posterior and outer, are further found to be composed mainly of the fibres of the *upper of the two primary cords*, of the plexus (although the posterior cord receives also a branch from lower main cord); finally, this *upper* main cord is seen to be made up of the 5th, 6th, and 7th cervical nerves, the lower main cord being formed from the 8th cervical and 1st dorsal. Now there was no eruption upon the course of the nerves which are derived wholly from the *lower* main cord, the ulnar, and the internal cutaneous, and we trace, therefore, the eruption in this case to the *upper* of the two main primary cords of the brachial plexus, which we have found to be composed wholly

of the 5th, 6th, and 7th cervical nerves (with a small fasciculus from the 4th cervical). Thus we are enabled to locate the nerve lesion somewhere about these large trunks or in the main cervical nerves, namely, the 5th, 6th, and 7th of the right side.

Turning now to the tumour which had occupied this patient's neck, on the same right side, we find that it extended from the angle of the jaw downward, overlapping the clavicle; laterally it reached from the median line to within one inch of the acromion process. It was hard to the feel, and seemed lobulated, the skin was tense over it. There can be little doubt from the description and history of this tumour that it was connected in some way with the lymphatics; indeed, the opinion of Dr. Frank Hamilton was probably correct, that it was a lympho-sarcoma. I am the more strongly inclined to this opinion from the report of four similar cases by Tholen,[1] three of which, like this, were successfully treated by arsenic internally, in a manner previously employed by Billroth in two cases. Two of Tholen's cases resembled mine very closely; in the first one the tumour in the neck was so large as to interfere with the movements of the jaw. After six months' treatment with Fowler's solution, in from three to five drop doses, with occasional hypodermic injection of ten drops of the same into the tumour, it had entirely disappeared, and there was no return after two years. The second case was treated similarly, and in five months regained, nearly, its normal contour. In the third case a large bunch of glands in the supra-clavicular and axillary region yielded to arsenic at the end of two weeks, and subsequently disappeared entirely. Tholen states that benign lymphatic tumours in the neck treated in this way were not altered.

Now the deeper lymphatics are in very intimate relation with the deeper vessels and nerves, and those in the neck, which appeared to be most implicated are in very close proximity to the cervical nerves, especially the 5th, 6th, and 7th, which, as we have seen, are the ones supplying the parts to which the eruption of zoster was distributed; and the whole tumour, further, overlapped and pressed upon the upper part of the brachial plexus. I would, therefore, advance the opinion that pressure upon these, or alteration in some manner, or their irritation by the tumour, was the cause of the subsequent development of the zoster upon the arm.[2]

In studying the anatomical relations of the disease in this case, it first occurred to me quite strongly that the cause might be a disturbance of the

[1] Arch. für Klin. Chirurg. vol. xvii. Practitioner, Oct. 1875, p. 298.

[2] Lest it should occur to any that the herpes was *due to the arsenic* which this patient had been taking, as some writers have suggested, reporting cases where zona has appeared while using this drug, I would remind them of the far larger number of cases of shingles in patients who have never taken arsenic, and would say that my patient could hardly be considered to be under its influence, as he had taken none for full five weeks previous to the development of this eruption.

sympathetic nerve, which sends communicating branches to the brachial plexus, as the middle and lower cervical ganglia of the sympathetic are situated just where pressure could be exerted by the tumour, but reflexion has made me exclude this element for reasons which will appear later, mainly, however, from the fact that the eruption of zoster has hitherto been conclusively proven to be in relation with the spinal nerves, and as they are also in a situation to be injured by the tumour in this case, they alone must be chargeable etiologically.

It can, of course, be objected that the eruption of zona did not occur until the tumour had undergone absorption, and that, therefore, the latter could have had no effect in producing it. But it is quite possible that the active and rapid process of absorption of so large a tumour, for it had very largely disappeared after forty-five days' treatment, may have induced inflammatory changes in the parts which had formerly been compressed by it—the step between the absorptive process in a new growth and active inflammation is shorter than we are wont to realize.

Most of the observations heretofore published in regard to the etiology and pathological changes in zona have pointed to inflammation of the spinal nerves *near their origin*, and to inflammation of the *spinal ganglia*, and of the Casserian ganglion in cases of ophthalmic herpes, so that the ganglia have come to be looked upon as the *primary* seat of disease in this affection. But that this is but a single point from which to view the pathology of this interesting eruption is, I think, very evident upon study, to make which clear I will briefly allude to some facts to which I called attention, and some references which I quoted in an article some time since,[1] on "The relations of the nervous system to diseases of the skin."

Danielsen found the sixth left intercostal nerve, in thoracic shingles, swollen and reddened by a firm infiltration of the neurilemma, extending largely to the cutaneous branches of the nerve; the medullary portion was normal. Bärensprung found the intercostal nerves thickened and injected, and the same general condition has been noted by several other observers; and Haight gives a drawing of a microscopical section of a nerve in herpes zoster showing cell proliferation in and around the neurilemma, the nerves swollen, the medullary substance softened, and the axis cylinder eccentrically displaced. Charcot and Cotard found neuritis of the *cervical plexus* and corresponding ganglia of the posterior roots in a case of zona of the neck.

While, therefore, a number of post-mortem examinations of patients with ophthalmic herpes have demonstrated that the Casserian ganglion is in a state of inflammation, is of a grayish-red colour and succulent, and while

[1] Archives of Electrology and Neurology, Nov. 1874, and May, 1875. Where other references are not given the facts are quoted from this article and the references may be found in it.

in some reports concerning zoster in other regions the spinal ganglia are stated to have been inflamed, I would at the present time direct attention rather away from the ganglia to the nerves themselves, which many, if not all, the examinations have likewise shown to be the seat of inflammatory changes between the ganglia and the diseased skin; the anatomical proximity may, perhaps, in the case of ophthalmic herpes, account for the more frequent involvement of the Casserian ganglion. The weight of evidence seems to me to point to the cause of herpes zoster in a general neuritis rather than in a primary inflammation of the ganglia,[1] as the following facts show: 1. In cases such as that of Dr. Weir Mitchell's,[2] where severe brachial neuralgia is accompanied by herpetic eruptions, sections of the nerves which were performed for the neuralgia have shown them to have undergone certain definite changes; thus in the particular case referred to by Dr. Mitchell, "In very few of the rings of the secondary fasciculi could the axis cylinder be recognized, even with high powers, the individual nerve fibres being no longer clearly defined, but presenting a confused mass of concentric rings." 2. Cases are reported where other neural affections have accompanied, preceded, or followed herpes zoster in a manner which leaves little doubt that the eruption on the skin was closely connected with the other diseases. Thus, in two cases of shingles affecting the arm, Mr. Paget found the neuralgia to continue after the attack, and with it the fingers exhibited in a well-marked degree the features seen after an injury of the nerve, they became thin, tapering, smooth, hairless, glossy, pink, and blotched; in another case by the same gentleman necrosis and separation of a part of the jaw followed herpes of the right superior maxillary nerve. A number of instances are on record where paralysis has accompanied herpes zoster, affecting the muscles supplied by the nerves whose cutaneous branches innervated the affected skin. 3. Eruptions of herpes have been noted as following central nerve lesions, as after contusion of the vertebral column, in cancer of the vertebra, and in a case of pulmonary phthisis, with carious vertebra, where there was a collection of pus reaching into the sheaths of the spinal nerves; it has also been noted after fracture of the base of the cranium. Zoster has likewise been reported as occurring in connection with certain idiopathic diseases of the nerve centres, as chronic spinal meningitis, cerebro-spinal meningitis, locomotor ataxia, and apoplexy. 4th, and finally, zona has been frequently observed to follow very shortly after surgical operations, as M. Verneuil has par-

[1] It will be observed that I use the term "*primary* inflammation of the ganglia," for I could not deny the post-mortem evidence that the ganglia are involved, but I believe it to be *secondary* to the neuritis, as lymphatic ganglia are imflamed in lymphangitis, although I know the simile does not hold good in every respect.

[2] Amer. Journ. Med. Sci., July, 1874, p. 26, and April, 1876, p. 321.

ticularly noted, and as has been well shown recently in a thesis by M. Picaud.[1]

I do not intend to question the fact that herpes zoster has to do with the sensitive nerves, whose fibres are ultimately gathered together and form the posterior roots of the spinal nerves, upon which are developed the ganglia, but only to indicate the improbability of a *primary* inflammation of the ganglion as a cause of zoster, unless, indeed, as before suggested, the ganglion becomes inflamed secondary to a neuritis (and this neuritis may be from the effect of cold on the terminal filaments). The impression may be, then, supposed to travel backward towards the spinal column, becoming transformed in the spinal ganglion to a trophic nerve action, which latter is transmitted centrifugally along the same nerve bundle, and produces the inflammatory disturbance in the cells of the part to which it is distributed; the difference between the normal nutrition of the part and the abnormal excitation of disease exhibits itself in the disturbed or irritated and inflamed condition of the ganglion. The subject of the influence of the nerves on normal and abnormal nutrition, or trophic nerve force, is one of very great interest and of great obscurity, and is yet far from solution. I am not aware of this explanation, which has occurred to me from the present study, having been demonstrated to be untenable, and if it has been proposed by others I have not been able to find reference to it; it finds support in Kölliker's[2] description of certain nerve fibres which take their origin in the spinal ganglia and proceed centrifugally with the sensitive nerves, and go to make up the complete mixed spinal nerves.

A further confirmation of neuritis as a cause of zona is found in a remarkably peculiar case of this disease reported lately by Kaposi.[3] In this case the eruption affected the right arm of a woman, aged 42 years, and there had been four recurrences of the same (that is, five attacks in all) within a space of eighteen months (I see that he has still more recently recorded a sixth attack in the same patient). There were many unusual features in the case in regard to the seat, form, and development of the vesicles, etc., which I need not dwell on, but mention the case to make this single quotation: "In this case the brachial plexus in the right supra-clavicular fossa (the affected side) was swollen to the touch and painful to pressure, the pain extending along the inner surface of the upper arm to near the region of the elbow." The frequent returns of the eruption were probably due to a continued inflammation of the bundles of the brachial plexus, the cause of which we are of course as ignorant of as we are of the exciting cause of idiopathic inflammation or disease of any one organ or part of the body.

[1] Des Eruptions Cutanées Consécutives aux Lesions Traumatiques. A. Picaud, Paris, 1875.

[2] Handbuch der Gewebslehre des Menschen. Leipzig, 1867. 5th Aufl. p. 316.

[3] Wien Med. Wochensch. Vierteljahresschrift f. Derm. u. Syph. 1874, p. 411, and 1875, p. 521.

If, now, my line of thought and illustration have been clear, I trust that I have assisted in bringing forward prominently certain facts in regard to the etiology of herpes zoster but little considered hitherto, which, together with our knowledge respecting this disease, may be thus briefly recapitulated:—

I. Whatever may be the cause of the nerve irritation, herpes zoster is always of nerve origin, that is, it is an inflammatory lesion of the skin wherein the local cell action, resulting in the production of vesicles, is but a result of nerve influence, a perverted cell action caused by perverted innervation.[1]

II. From the almost constant changes found in the ganglia developed on the posterior or sensitive roots of the spinal nerves of the affected regions, we must infer that the trophic changes observed in the skin have to do with the sensitive nerves, which marks a certain advance in the study of the physiological relations of the trophic nerves or nerves of nutrition.

III. We are not to conclude, however, that zoster is the result of inflammation of the sensitive ganglia alone, for the entire nerve on the distal side of the ganglion has been always found to be inflamed, and abundant proof exists of eruptions of zoster due to various nerve lesions, peripheral and central, injuries and disease of the transmitting nerves and of the cord and encephalon.

IV. In certain cases the origin may be shown to be idiopathic inflammation of conducting nerves (as in Kaposi's case quoted), or they may be affected by pressure or other alteration caused by the presence of a tumour (as in the case given here), or the disease may be the result of surgical or other injury.

V. The origin, therefore, of herpes zoster is a direct nerve irritation and inflammation, and in ordinary, apparently idiopathic cases, the explanation of this is to be sought for in the same causes as give rise to neuralgias in general, some of which are traceable, many are not. The gouty habit, inducing neuralgia, can likewise give occasion to herpes; the direct exposure to cold of the terminal branches of a nerve, as in the head and neck or elsewhere, can cause painful excitation of the nerve itself, or neuralgia, and is equally a cause of zoster; malaria can originate neuralgia, and may not therefore some of the cases of zona be due to a malarial influence?—certainly the prompt action of citrate of iron and quinia in some cases might point to a malarial element.

[1] I do not deny the influence also of capillary congestion, but as normal nutrition is rather the result of a proper appropriating of the needed nourishment and a giving up of unneeded and effete elements by the cells of a part, so under abnormal innervation the amount of fluid called for by the cells contiguous to the bloodvessels is larger than is needed, and forms the vesicles; by a lowered vitality endosmosis of the cells of the skin is in excess, as is seen outside of the body in dead animal tissues. Vaso-motor action, being also a trophic affair, is undoubtedly likewise disturbed.

VI. In considering, then, the true nature of herpes zoster we are rather led away from the skin lesion to the antecedent neuritis, whose manifestations are neuralgia, more or less marked, and disturbances of sensation in the area of nerve distribution, represented by hyperalgesia, hyperæsthesia, and anæsthesia, while at the same time other results of nerve disturbance may occur, as paralysis of muscles, trophic alterations in the tissues, and even necrosis and separation of bone. In other words, the eruption of zoster is an epi-phenomenon to a primary neuritis and neuralgia.

VII. The clinical history and therapeutics of herpes zoster are in themselves almost convincing proofs of the neurotic nature of the disease. In most cases, especially in younger patients, the treatment is purely expectative, while in severe cases and in elderly persons the neuralgia is the principal element requiring attention, and this is remedied by measures directed to the nervous system. In the majority of instances the nerve irritation or inflammation subsides spontaneously, the whole train of morbid phenomena occupying about the same length of time taken by other self-limited inflammations, as pneumonia and erysipelas, while under certain circumstances the *sequelæ* require attention, as in other diseases. The local destruction of tissue is sometimes a troublesome feature in the way of ulceration or necrosis of the skin, or the neuralgia persists to a distressing degree even under the most intelligent treatment.

VIII. Three therapeutic agents seem to have marked control over herpes zoster, whose cutaneous manifestations as well as painful element they appear to arrest. First, phosphorus, which, used in the form of phosphide of zinc, one-third of a grain with one-third of a grain of extract of nux vomica, every three hours, will pretty certainly *abort* the disease if given early as recommended by Dr. Ashburton Thompson.[1] I should presume that the tincture of phosphorus, or what is known as Thompson's solution of phosphorus, as now used so successfully for neuralgias,[2] would have the same effect. I have not tried them in this disease, but have used the phosphide repeatedly and with most excellent results. Second, electricity: the galvanic current passed directly through the affected nerves, their trunks and peripheral distributions, will have the effect of causing the eruption either to abort, if used early, or will make the newly formed vesicles dry up much sooner than otherwise, and will pretty certainly check the pain. Third, quinia with iron will, I think, if pushed early in the disease, shorten the duration much and relieve many unpleasant symptoms.

Whether ergot, which has been of great service in neuralgia in the hands of some, would check this congestive neurosis I cannot say, but should hope much from it. The hypodermic injection of morphia, as we

[1] Glasgow Med. Journ., Oct. 1874, p. 460. Braithwaite, July, 1875, p. 169.

[2] Transactions of the Amer. Neurolog. Assoc., vol. i. p. 224. New York, 1875.

know, relieves the neuralgia, and if used early and repeatedly, might abort the disease by checking the nerve-irritation, especially if conjoined with atropia. Painting the surface with collodion or colloid coating containing morphia would serve the same purpose—some assert that it is a very valuable measure. Ordinarily the only local treatment required is protection of the inflamed surface, and this is best accomplished by powdering it with starch and keeping a single thickness of muslin firmly applied, and left on till the vesicles are dried.

In conclusion, I would, as a suggestive thought in regard to the subject of the nerve relations of the disease in question, and perhaps of other affections, mention a remark of Handfield Jones, when writing on herpes zoster:[1] "One can hardly avoid surmising," says he, "that in many cases of pleurisy with effusion the pathological action is quite the same as in pleurodynia with cutaneous vesicular eruption, only that the pleural vaso-motor nerves are paralyzed, and not those of the integument."

ART. III.—*On the Catarrhal Type of Diphtheria and its Treatment by Cubeb.* By BEVERLEY ROBINSON, M.D., one of the Physicians to Charity Hospital, New York; Surgeon to the Manhattan Eye and Ear Hospital (Department of the Throat), etc. etc.

MANY writers have pointed out the fact that during the period of a prevailing epidemic of diphtheria, or during a short lapse of time previous to an outbreak, catarrhal affections with different localizations have frequently been encountered. A certain number have recognized in the catarrhal trouble, where it has become manifest upon the superior portion of the air-passages, an efficient cause of this disease. But few have been willing to affirm that diphtheria is itself an essentially catarrhal malady. And yet there are many good reasons which should incline one to this belief.

1. Diphtheria is attributable to similar causative agencies with those of catarrhal affections.

2. Their invasion is slow, their incubation long.

3. These maladies determine a "flux" upon the mucous membranes, which they affect.

4. The crisis in catarrhal affections is doubtful and incomplete.

5. The special therapeutic indications are almost similar.

6. The catarrhal affections *alone*, amongst the ordinary acute diseases, are apt to become the occasion of a chronic disease. Alone, also, they are able to raise themselves, by degrees, to *specificity*.

[1] Journal of Cutaneous Medicine. London, 1868, vol. ii. p. 132.

Such is a summary of the essential characteristics of catarrhal affections (Chauffard). Moreover, the catarrhal affections may contract at a given moment the infectious character which is not necessary to their essence. They are, then, similar to other infectious diseases, and may become the sources of contagion. Further, specific products are elaborated by them upon the mucous surfaces, which are readily carried about outside the body, and aid notably to spread the disease.[1] And Monneret[2] says expressly, that under the name of catarrhal diseases we must comprehend a totality of febrile diseases which depend on a general state of the organism, upon an expression called catarrhal fever. The three local maladies, the three determinations which have a particular name, wholly in being attached to a general element, are influenza, hooping-cough, and diphtheria.

In the authors quoted we see personified the conviction which points out the controlling influence of the seasons and of the special reigning medical constitution, which shows the analogy of diphtheria in its prodromic and initial symptoms, in its fully developed phenomena and march, with those so manifest in a simple attack of epidemic bronchitis. They are opposed to the germ theory of these affections, and in company with Charlton Bastian[3] they recognize that organized ferments will not explain satisfactorily the rapid generation and propagation of infectious disease over widely extended tracts of country, sometimes separated from each other by great distances, in a lapse of time so brief as to be almost inappreciable.[4] There is no necessity, moreover, to admit the existence of a ferment or contagium which is not as yet proved to be present, and to deny absolutely, without rigid research, the influence of atmospheric conditions; for amongst these conditions there are some which consist in neither the temperature, nor the barometric pressure, nor the hygrometric state of the air, and which, although they are unknown, manifest their existence no less evidently by their effects upon the living organism.[5]

Sometimes, doubtless, a catarrhal constitution is dominant, and yet during the period of its great prevalence diphtheria is but rarely seen.

This fact proves merely that the catarrhal inflammations of the throat or bronchial tubes then encountered by us have not happily taken upon themselves the specific characters of the pseudo-membranous disease.

[1] Bulletin de l'Academie de Médecine, t. xxxiv., 1869, p. 62.

[2] Traité élémentaire de Pathologie Interne, t. iii., p. 454, 1866.

[3] Address delivered before the Pathological Society of London, April 6, 1875.

[4] This doctrine is opposed to that held by Prof. Œrtel (*Ziemmsen's Cyclopædia*, vol. i.), who, in his article on diphtheria, and while he describes a catarrhal form of this disease, also fully admits the action of bacteria (micrococci) in transmitting it. In my opinion the catarrhal form of diphtheria described by Œrtel resembles ordinary membranous sore-throat enough to be confounded with it.

[5] Bergeron, Des Caractères Généraux des Affections Catarrhales Aiguës, Paris, 1872.

With respect to the anatomical signs of membranous inflammation, it may be affirmed that they are often confounded with those of a purely catarrhal one. Rindfleisch[1] notably has proved how near and complete the juxtaposition of these two so-called distinct exudative products may be found. And Hayem,[2] Biermer,[3] and E. Wagner are not far removed from a similar belief.

Basing his therapeutical creed upon analogous views, M. Trideau, of Andouillé, commenced about ten years ago to treat all his patients attacked with diphtheria with the balsamics. At first he made use of mixtures of styrax and copaiba. Later on he administered the syrup of copaiba with cubeb. During some time past he has employed cubeb alone. Upon several occasions Trideau endeavoured to popularize his therapeutic method, and with this intention he went to Paris in 1866. His views were thought lightly of by many; they were adopted by a few, amongst whom we find Trousseau, Paul, and Bergeron. The trials made were only partially successful, and while the treatment is spoken of as excellent, some reverses are recorded. Sufficient reasons may be assigned for these failures without necessarily implicating the utility of the balsamics in diphtheria. By no one can they be more properly given than by myself, as I was house physician in Dr. Bergeron's wards when experiments were still conducted (1872).

1. The treatment was frequently begun at an advanced stage of diphtheritic toxæmia.

2. Different preparations of cubeb were employed, and some I have since found are relatively inert. The truth of this statement is corroborated by the experience of Trideau, and the experiments of Prof. Bernatzik.[4]

3. Children could not always be persuaded to take this drug.

Already I have made use of cubeb in at least 20 cases of membranous sore throat. Of these 8 or 10 presented a reunion of symptoms sufficiently characteristic to enable me to affirm they were examples of real diphtheritic infection. I have had two deaths to deplore; one, of a woman, over 60 years of age, when the disease was secondary, and treatment abandoned; the other, of a child, where death ensued in less than three days from the *debut* of symptoms, and was proximately occasioned by sudden failure of heart power. The remaining cases recovered. From them I have excluded all examples of follicular tonsillitis.

I here present brief notes of two cases, under my care during the past winter, and treated by freshly powdered cubeb. The first is an example

[1] Virchow's Archives, Bd. xxi.
[2] Hayem, Thèse d'Agrégation, Paris, 1869.
[3] Handbuch der Specialen Path. und Therap., v. Bd. 1875.
[4] Prager Vierteljahrs, lxxxi. 9; and Biennial Retrospect, Syd. Soc., 1867.

of ordinary membranous sore throat; the second, an instance of diphtheria.

CASE I.—R. B., æt. 5 years, a pale, delicate looking girl. I was called to see her in the morning of January 13th. Her mother informed me that she had complained of having pain in her throat during the afternoon previous, and that towards evening a small white patch was visible on one of the tonsils. She had passed a restless night, and was evidently feverish.

This morning (Jan. 13th, 9 A. M.), she showed repugnance for food; no vomiting; no motion; on palpation I found slight pain in the submaxillary region; deglutition somewhat difficult; tongue thickly coated; tonsils swollen; the left covered with a thick, rather grayish false membrane; no exudation on uvula, or pillars of fauces; nasal intonation of voice; breathing accelerated; temp. in axilla 102½° Fahr.

Treatment: Pulv. cubebæ, gr. x, every two hours. 6. P. M. Skin cooler; one rather loose motion; false membrane on tonsil somewhat contracted. Treatment—ut supra.

Jan. 14. Decidedly better; a portion of the false membrane has disappeared from tonsil. Vomited last dose of cubeb.

Treatment: Application of tinct. of iron and glycerine (℥j–℥j) to fauces. Elixir calisaya, ℥j, t. d. s.

15*th.* Membranous exudation completely eliminated; patient convalescent.

CASE II.—A coloured female nurse, about thirty years of age, caught diphtheritic sore throat from a little girl whom she had taken care of, and who died of diphtheria of very aggravated form, three days previous to her own attack. The soft palate, fauces, and tonsils of this woman were covered with false membranes of characteristic description, which partially disappeared during the progress of the disease, only to reappear again after a few hours in the same spots from which they had been once eliminated.

The submaxillary ganglia were somewhat enlarged, and moderately painful on pressure.

Deglutition was difficult. All the general phenomena of diphtheritic poisoning of moderate intensity were present, viz.: pain in the head, back, and limbs; lassitude; inability to make exertion; low heart action; rapid and feeble pulse; moderate elevation of temperature, etc. In eight or nine days from the time membranous exudation appeared upon the throat, this patient was convalescent.

How does cubeb act in diphtheria? It stimulates the mucous surfaces, 1. By direct contact where this is had; 2. By elimination, which takes place in great part through the respiratory mucous membrane, and through that of the kidney. During the latter period, there is real substitution of a slight inflammatory condition, artificially obtained, for one of like order, but natural and specific. In this way, the morbid processes often present in the air passages throughout their entire surface, are favourably modified.

Cubeb tends to arrest mucous secretions, and, on this account, membranous exudation does not reform as rapidly or abundantly. False membranes already formed lose their intimate adherence with the original

site of growth, and are resorbed, or fall into the buccal cavity and are expectorated. They also shrivel to a limited degree, and are less covered with liquid secretions. When the pseudo deposit reappears in the spot from which it has once dropped, or been resorbed, it differs considerably from the primitive one. It is changed in colour, configuration, and other properties. It is white, or of a white slightly bluish tinge, less thick and prominent, less adherent, and covers a more limited area. It has lost its disposition to extend to new surfaces, whether it be towards the larynx, or towards the nasal cavities. The above effects manifest themselves usually in about forty-eight hours from the time the exhibition of cubeb is commenced. Sometimes they are evident before the expiration of this period; occasionally three or four days may elapse before apparent results are obtained. If this medicament be employed in due season, and with persistence, rarely it will fail to effect what I have stated.

It frequently takes a week or more for *secondary* membranes to disappear entirely from the throat. They do so gradually and by small, well-defined areas, from the circumference towards the centre of a given patch. This rule is not invariable, however, for now and then a circumscribed region of mucous membrane clears itself rapidly at or near the centre of a continuous layer of pseudo-membranous deposit. Whenever a bare space appears (at times ulcerated), the mucous membrane is there rosy and of more healthy aspect than that which surrounds membranes still present, and has lost the sombre bluish tint so characteristic of diphtheritic angina. In ordinary membranous sore throat, rarely, if ever, do membranes reform immediately, or after the expiration of a few hours.

Whenever they do return, which is frequently true, they come back after the lapse of several days, and during apparent convalescence. With the reappearance of membranous exudation, febrile symptoms similar to those of the primary attack recur.

Moreover, in this affection the pseudo-membranes last but a short time. Under usual methods of treatment three or four days is the limit. By the cubeb treatment I have seen the whole process terminated in less than forty-eight hours. And in this time, also, the rapid pulse, considerable elevation of temperature (101°–103° F.), with thickly coated tongue, and complete inappetence had gone. Taken together these are signs of differential diagnosis between ordinary membranous angina and diphtheria, which leave no room for doubt.

What are the counter-indications of this treatment?

There are none absolute. And in the great majority of cases it is perfectly innocent. It does no harm to any organ, and is productive of good to several. When the stomach is in a torpid condition, moderate doses act as a stimulant to the digestive process. And even the large doses given by me are well tolerated by many patients. At times, however, the

stomach or intestine becomes intolerant, and dyspepsia or diarrhœa may result apparently from this treatment.

In such cases I am not disposed to attribute untoward consequences solely to the use of cubeb. For it is known that it occasions constipation more frequently than diarrhœa[1] (Ricord), and we are aware that functional derangements of the alimentary canal are not infrequent in diphtheria. More than once I have witnessed repeated vomiting in the absence of other determining cause than the presence in the systemic circulation of a specific noxa. Under these circumstances I have seen one of the most popular tonics rejected (viz., tincture of the chloride of iron), although prescribed by me in an approved pharmaceutical mixture, and the cubeb mixture, hereinafter mentioned, met with no repulse.

I believe, therefore, that much of bad notoriety acquired for cubeb, on account of its nauseous taste and the intolerance manifested by the stomach, is unmerited.

This reputation properly belongs to its rival, copaiba.

Nevertheless, I would not have my readers believe that I consider cubeb to be an immaculate drug, and free from other than virtuous tendencies. It may occasion, at rare intervals, slight disturbances of different organs. That accidents, due to its exhibition, are frequent, I have no hesitation in denying positively. While, however, cubeb may not bring on digestive troubles directly, it may increase or prolong those which are pre-existent.

By decreasing the doses given, or even interrupting for a time its administration, we can usually correct such undesirable effects.

With respect to the action of cubeb on the skin, I have not remarked anything to deter one from its use. It is affirmed by Trideau that rarely it will produce a more or less general erythematous or papular rash, and that when this rash has occurred, it has usually become evident about the time the false membranes had begun to disappear from the throat. I have not observed these concomitant phenomena. The question remains, however, whether the cutaneous eruption is not rather to be desired than regretted, as showing the physiological action of the drug in an organ where, it seems to me, it may be especially useful by relieving, in some degree, the morbid effects of the disease upon the mucous linings of several viscera. And the somewhat diuretic and stimulant action of cubeb upon the kidneys is, I take it, decidedly beneficial. Certainly, I feel convinced by numerous cases closely watched, that there is nothing to be feared in this direction from the irritation produced in organs frequently much congested during the course of diphtheria. And fortunately I am able to quote the experience of another than myself to corroborate this view.

In *La France Médicale* of May 16, 1874, Dr. Reignier, of Surgères, reports a case of nasal diphtheria in a boy aged ten years, which he, two

[1] Article, Cubèbe, Dict. de Méd. et Chir. Prat., t. x. p. 439.

years previously, had successfully treated by cubeb. There was an enormous quantity of albumen in the urine; and it was with the object of checking the drain from the system that Dr. Reignier, calling to mind the action of cubeb on the kidneys, prescribed that drug with a success which he was far from hoping for. He has since treated seven other cases of nasal diphtheria in a similar manner, and with a like success; and, therefore, thinks he may now, without rashness, recommend its adoption. These facts, which result from the employment of this drug in the disease under consideration, go far to prove that its action upon the kidneys in diphtheria is serviceable. Moreover, by analogy we might prejudge such effects.

Gonorrhœa is an acute affection of admitted catarrhal and specific type. In its treatment cubeb is frequently given in heroic doses from the commencement of the attack. And although I doubt the propriety of administering this drug during the primary period, when fully marked by symptoms of intensely inflammatory character, I am confident that just so soon as the *very* acute stage has become partially dissipated, and the urethral canal presents a condition of subacute congestion, its internal use is highly to be commended.

Why, then, in very like or analogous circumstances, should we fear injurious effects from the action of cubeb upon a continuous mucous surface? Further, I add, that I consider it desirable to administer powdered cubeb before albumen has made its appearance in the urine, or at all events from the first moment when it becomes manifest. In reality I am of opinion that it may be employed with many chances of success as an abortive means from the *outbreak* of the symptom which points to kidneys morbidly deranged, and before the more advanced condition of degeneration of these organs has become developed. Here, again, analogy with the *debut* of the inflammatory stage of true gonorrhœa will seemingly justify my reasoning.

Finally, I would add that cubeb has no apparent power to ward off symptoms of muscular paralysis in different organs. This we should expect, and against these we should guard ourselves by the rational practice of incorporating into our treatment, so soon as possible after the acute stage of the disease has passed, moderate, or even large doses of strychnia. In fact, I am disposed to believe, that strychnia may be given advantageously for its corroborative action upon the cardiac muscle, from the initial stage of diphtheria. The mixture employed by me most frequently is the following:—

℞. Pulv. cubebæ (freshly powdered), ℥j;
Syrupi aurantii,
Aq. menth. pip., āā ℥jss.—M.

S.—To be taken in 24 hours, or a dessertspoonful every two hours.

This is the usual adult dose. From a fourth to a half of the above quantity may be given with propriety in the same lapse of time to a child three years of age.

I would lay great stress upon the importance of making use of *the freshly ground powder*. No other preparation of cubeb is at all so efficacious.[1]

For some time past I have recommended the treatment of diphtheria by cubeb to my medical friends, and must confess that several amongst them listened at first to my declared convictions with respect to its great advantages in a spirit of very doubtful credulity. A few, although they were manifestly unwilling entirely to embrace my own faith in its efficacy, saw that it was a therapeutic method *eminently rational*, and promised, upon my earnest solicitation, to give it a fair trial at their earliest opportunity. From the latter I have already received several verbal statements, in which they expressed themselves highly gratified with their successful employment of cubeb in well-marked cases of diphtheria.

On one occasion the cubeb was given concomitantly with other drugs; on another it was administered *alone*, and at a period when other remedies previously employed had failed to accomplish good results, and the patient remained in a stationary condition.

The cases treated by my colleagues, after the manner recommended by me, recovered; and although this success was regarded by some of them as being rather an incidental than a consequent result of the treatment employed, still they all admitted that it was worthy of being more fully tested.

To all those who are in quest of a reliable remedy in the treatment, not only of diphtheria, but of every form of membranous sore throat, I can wholly recommend cubeb, given according to the above formula. It cannot be called a specific of these diseases, for it will *not always* cure. When, however, it is employed *early* in the disease, and while the pseudo-membranous exudation is still limited to the fauces, tonsils, and pharynx, it will, I am convinced, cure effectually and rapidly a large proportion of these cases.

Of course, against the possible occurrence of ultimate or secondary phenomena it will not, nor should it be expected to act either as a prophylactic or remedial agent. Whenever, too, the membranous deposit has unfortunately seated itself from the beginning in the larynx, trachea, or bronchial tubes, I believe that it will accomplish a cure in but a very limited number of cases. To hope for more than this would be to expect too much of it. And after all, where is the medicament which can be submitted to an ordeal so searching, and shall come forth victorious? Will quinia always cure a second or third paroxysm of

[1] This fact has already been insisted upon by M. Trideau.

malarial fever of pernicious type? And yet we are all inclined to look upon quinia as the nearest approach to a specific in the treatment of this malady.

Do not let us ask too much of any known substance, and because a medicament is an excellent one, let us not be disconcerted if it be not infallible.

ART. IV.—*The Efficacy of the Physiological Antagonism of Opium and Belladonna in the Treatment of Poisoning, as shown by an Analysis of* 370 *Cases.* By CHARLES A. OLIVER, M.D., of Philadelphia.[1]

As the antidotal value of opium and belladonna is still *sub judice*, I have collected the notes of 256 cases of opium poisoning, and of 114 cases of belladonna poisoning, one half of each series being treated by use of the antagonistic drug, and have analyzed them, particularly with a view of determining the value of other modes of treatment, as compared with that by the so-called physiological antidote.

In order to more nearly approximate the truth, I have compared the results of treatment in cases where the same quantity of poison has been ingested.

TABLE I. *Opium Poisoning.*

Amount.	Belladonna treatment.			Other modes of treatment.		
	Recov'd.	Died.	Per cent. of Recover's.	Recov'd.	Died.	Per cent. of Recover's.
Under gr. j . . .	2	0	100	8	12	40
Gr. j-grs. x . . .	30	3	85	20	8	71
Grs. x-xx	14	1	93	11	5	69
" xx-xl. . . .	36	1	97	17	3	85
" xl-lx	9	0	100	17	1	94
" lx-lxxx . . .	7	1	88	10	2	83
" lxxx-c . . .	2	0	100	4	0	100
Over c	3	0	100	1	1	50
Unknown	19	0	100	6	2	75

Throughout the entire table there is shown a marked difference in favour of the "belladonna treatment."

[1] This paper is an abstract of a thesis presented to the Medical Faculty of the University of Pennsylvania, for the degree of Doctor of Medicine, March, 1876.

TABLE II. *Belladonna Poisoning.*

Amount.	Opium treatment.			Other modes of treatment.		
	Recov'd.	Died.	Per cent. of Recover's.	Recov'd.	Died.	Per cent. of Recover's.
Under gr. j . . .	1	0	100	...	...	...
Gr. j–grs. x . . .	16	0	100	13	1	93
Grs. x–xx	7	0	100	6	0	100
" xx–xl	7	0	100	4	0	100
" xl–lx	4	0	100	4	0	100
" lx–lxxx . . .	4	0	100	2	0	100
" lxxx–c . . .	1	1	50	...	...	...
Over c	3	0	100	...	...	...
Unknown	12	1	92	21	6	78

The above table exhibits a difference in favour of the treatment by opium.

Consequently, from this method of study, there can be no doubt that, of the two treatments, the one by the use of the physiological antagonist has yielded by far the better results. The indications for the exhibition of belladonna in opium poisoning are, decreasing respiration and a tendency to profound stupor. The belladonna should be administered hypodermically, in the form of small physiological doses of atropia frequently repeated.

In belladonna poisoning, the opium seems to be useful in thwarting the effects of over-stimulation (paralysis of heart and lungs).

ART. V.—*Hippuric Acid in the Urine produced by eating Cranberries.*

By WM. KELLER, M.D., of Philadelphia.

ONE of the most interesting and also important problems in the chemical department of physiology and pathology, is the study of the changes which substances incorporated by digestion in the human system undergo during circulation. One way to find this out, and sometimes in a very striking manner, is by analyzing the urine. The first to use this mode was Professor Woehler, whilst he was a student of medicine at Heidelberg, in 1828. All his experiments were made on a little dog, which he kept for this purpose. In regard to benzoic acid, he believed it to be secreted by the kidneys unchanged, as hippuric acid was then unknown, Prof. Liebig having discovered it in 1829, a year later, in the urine of the horse and cattle. In 1842, Dr. Ure found by analyzing the

urine of a patient, who had taken benzoic acid, hippuric acid, but no uric acid. He was naturally led to believe that benzoic acid uniting with the nitrogen would prevent the formation of uric acid in the blood, and, supposing this to be the cause of gout and rheumatism, it would be the most proper remedy. Prof. Woehler drew my attention to this subject, and being familiar with benzoic acid, having prepared it many times, and not believing that it could produce hemorrhage of the lungs, as it was then asserted in the books of materia medica, I took in the evening, before going to bed, two grammes of benzoic acid without any inconvenience, having first emptied the bladder. My urine in the morning contained the hippuric acid according to expectation, what is now easily understood by looking at the following formula :—

$$\underset{\text{(Benzoic acid),}}{C_{14}H_6O_4} + \underset{\text{(Glycocoll),}}{C_4H_5NO_4} = \underset{\text{(Hippuric acid).}}{C_{18}H_9NO_6} + 2HO.$$

I was able to repeat this experiment at pleasure with impunity.

In the course of time, by adopting this mode of experimenting, it was found, that benzoic ether, essential oil of bitter almonds, amygdalinic, cinchonic, and cinnamomic acid turn also in this way into hippuric acid, and it is likely that some other substances of that kind will be discovered in time. Also hippuric acid may appear in larger quantities in the urine as a pathological production. I have seen it myself once, in characteristic crystals, by the naked eye, in a deposit of brick-dust colour in the scanty concentrated urine of the morning of an American lady in Germany, affected very seriously by acute bronchitis.

The expectation, that the formation of uric acid could be prevented by the use of benzoic acid, was not realized, as I found it always in that urine, what was particularly mentioned in a preliminary notice at the meeting of the learned society of Göttingen in June, 1842, by Prof. Woehler; so it was in my paper on the subject in Woehler's and Liebig's Annals of Chemistry. Therefore Prof. J. Vogel, stating, in the *Anleitung zur qualitativen und quantitativen Analyse des Harns*, p. 290, 7th edition, that it was sufficiently proved that Ure and Keller were mistaken in asserting that the formation of uric acid could be prevented by taking benzoic acid, must have forgotten that he had learned the contrary fact first by my experiment.

Knowing that a number of fruits, which contain some of the mentioned substances, like the prunes, the greengages, the berries of vaccinium vitis idæa, and of rubus chamæmorus, produce hippuric acid in the urine, I wished to learn what effect our cranberries, the fruit of oxycoccos vaccinium, vaccinium macrocarpon Atiton, would have in this respect; therefore the urine of the morning of several children from 6 to 16 years of age, who had taken for supper a jam, prepared from about a quart of cranberries, passed through a sieve, and a pound of sugar, was evaporated and examined for hippuric acid. It yielded 2 clusters weighing 20 grains. If this

had been my main object, I could have got more; but supposing cranberries to contain malic acid, and knowing that, at least malate of lime taken internally will produce succinic acid in the urine, my aim was to find it here; but in this respect I was disappointed, as even the extract by ether showed, by evaporation under the microscope, nothing but the characteristic crystals of hippuric acid.

ART. VI.—*A Contribution to the Pathology of Epithelium.* By ARTHUR VAN HARLINGEN, M.D., Chief of the Skin Clinic, Hospital of the University of Pa. (With illustrations.)

The Epithelium in Seborrhœa, Psoriasis, and Eczema.—The microscopic examinations of epithelium, of which notes are here given, were made some time since. I had originally undertaken them with the view of gaining some practical aid in the differential diagnosis between seborrhœa, psoriasis, and eczema,[1] as these affections are found occurring in the scalp. When they involve other portions of the body at the same time as the scalp, it is comparatively easy to distinguish between them. When, however, they are found in the latter locality alone, the diagnosis often becomes a matter of considerable difficulty.

The product of disease consists in each case chiefly of epithelial cells, mingled to a greater or less extent with the local glandular secretions, and although, in typical cases, the colour and lustre of the epidermic masses, their arrangement, whether in patches or generally diffused, and the like naked eye appearances might serve in making a decision, yet it appeared probable that in a certain number of instances, where these signs might fail, much aid could be obtained by a microscopic examination. It would seem plausible that, as in extreme and typical cases such difference in gross appearance is presented, so in like manner the microscopic structure of the constituent elements should present peculiarities in each disease which should be characteristic, and that these peculiarities should prove decided, invariable, and easily ascertained. But the differences in structure should be apparent upon microscopic examination, even in non-typical and uncertain cases, where the gross appearances might not be distinctive of the disease; the microscope, therefore, should serve and might be made to aid in the diagnosis of these affections in practice.

In the course of the investigation, however, the number of examinations multiplied and were extended beyond the limit originally laid down, so that they included the epithelial product in various other diseases. The

[1] I refer, of course, to the squamous form of eczema, and to the dry form of seborrhœa—S. sicca.

idea then suggested itself of extending the range of research, until it should embrace an examination and comparison of the appearances of the epithelium in all those affections of the skin in which this plays a prominent part.

Circumstances have thus far prevented my carrying out the plan proposed to its entire extent, and I think it better to publish the notes of examinations already made, although these extend only to a limited number of diseases, than to postpone making them known until an opportunity occurs of completing the investigation. I present, therefore, in this paper, the notes of microscopic examinations of the product of disease in seborrhœa, psoriasis, and eczema. This product being almost entirely epithelial, it was the study of the epithelial cells which engaged my attention.

For purposes of comparison, I have arranged the appearances noted under the nine heads following, in order :—

1. General appearance of the product of disease.
2. The reagents employed, and the microscopic power used. (The latter when not specified was an ordinary objective of one-fifth of an inch focal distance with a low eye-piece, giving an amplification of between 237 and 250 diameters.
3. The facility with which the cells absorbed the staining fluid.
4. The diameter of the cells.
5. Nature of the cell contents (granular, oily, etc.).
6. Outline of the cells, whether smooth or irrregular, their shape, their tendency to flatness or curling at the edges.
7. The presence or absence of nuclei together with the general appearance of these.
8. The connection between the cells, whether close and firm or loose.
9. Presence or absence of granular matter, debris, etc. in the microscopic fields, extraneous to the cells.

The notes of examinations given below will generally be found to include some record under each of these heads. Occasionally, when the examination has not been made complete, or in many cases where a full history has been wanting, the case has nevertheless been placed upon record as being sufficiently characteristic for the purpose.

I will now proceed to give the results of examination in various cases of seborrhœa of both head and body, including not only typical instances, but some where the appearances were not altogether characteristic. The first case given is one of typical aspect and average duration involving both head and body, the subsequent ones will be seen to vary as regards the different conditions, of duration, severity, age of patient, and the like.

CASE I. *Seborrhœa Corporis et Capitis.*—J. H., age 41. Disease of some years' standing. Ordinary "dandruff" of the scalp, and a patch of seborrhœa the size of the palm over the sternum. *Body.* Scales taken

from the diseased patch were yellowish, oily looking, adherent, and could be made into a ball between the thumb and finger. *Microscopic examination.* Treated with water and aniline, coloured well, though the staining material penetrated with difficulty owing to the amount of oily matter present. Apparently two sets of cells, a larger varying between .0256 mm. and .0384 mm., averaging .0307 mm., and a smaller not measured. Cell contents decidedly granular with occasional distinct oil globules. Edges thin and flat; not inclined to curl or fold up. Nuclei common, sometimes shrunken and containing what seemed to be a vacuole. The place of the nucleus was frequently occupied by a lighter circular area. Considerable granular matter in field.

Scalp. Scales pearly-white, thin, and easily separable. *Microscopic examination.* Treated with aniline and water, the cells coloured well. Average diameter .0333 mm., though some were much smaller. Cell contents rarely granular. Outline usually distinct, with little tendency to curling on the edges. Large bright nuclei common. Cells loosely connected. Little granular but considerable oily matter in field.

CASE II. *Mild Seborrhœa Capitis.*—J. V., age 76. Slight "dandruff" of the variety usual in aged persons. Of many years' standing. Scales pearly-white, tending to aggregate in small flakes, and coherent. *Microscopic examination.* Cells seemed thin and small; their diameter was not measured. Few possessed a nucleus. They showed a decided tendency to roll together and curl on the edges. No granular matter in field.

CASE III. *Severe Seborrhœa Capitis.*—Emma N., age 17. Has had "dandruff" ever since she can remember. Much worse during past year. Scalp thickly covered with characteristic eruption. The scales presented the usual pearly, greasy lustre, and tended to cling together. *Microscopic examination.* Treated with aniline; the cells coloured well. Diameter not noted. Cell contents usually granular. Outline smooth and regular. Cells presented a succulent appearance as if recently formed. Nuclei common. Considerable granular matter in field.

CASE IV. *Severe Seborrhœa Capitis.*—H. McK. Disease of twelve years' standing. Scalp covered with characteristic scales. *Microscopic examination.* The scales were macerated in ether for some weeks, and were then treated with water and carmine, colouring fairly well. Diameter of cells averaged .0333 mm. Contents not distinctly granular. Outline distinct and regular; no tendency to curl on edges. Large distinct nuclei (or nuclear spaces) common; showing no colour with carmine but remaining light and clear with heavily tinted borders.

CASE V. *Seborrhœa Faciei et Capitis.*—No history. *Microscopic examination. Face.* Treated with water and aniline, cells stained poorly, outline regular and no curling at edges. Few nuclei, and those only dimly outlined. Little or no granular matter in field. *Scalp.* Treated with aniline, cells stained deeply. Nuclei tolerably frequent. No granular matter in field.

CASE VI. *Seborrhœa Corporis.*—D. Wilson, severe acne faciei, with seborrhœa of the body. Scales adherent. *Microscopic examination.* Cells thin, transparent, dry looking, irregular in outline. No nuclei. Cells usually flat.

CASE VII. *Seborrhœa Corporis.*—No history. Two kinds of scales were taken for examination, one large and compact, the other small, loose, and friable. *Microscopic examination.* Macerated in ether for four

weeks. Treated with water and aniline. Diameter of cells varied between .0333 mm. and .0384 mm. Cell contents not granular. Outline generally smooth and regular, few cells curling on edges. A few cells contained a large, bright area, instead of the usual nucleus; many contained a small, faint, light area. Nuclei uncommon. In one cell a central dark spot was observed, with a bright areola.

CASE VIII. *Seborrhœa Corporis.*—No history. *Microscopic examination.* Examined with water and aniline. Rather lighter colour than usual. Diameter averaged .0332 mm. Contents of cells decidedly granular; in some cases there was apparent fatty degeneration. Many cells polygonal in shape, others irregular. Outline according to drawing smooth and regular; some cells curled upon edge. A number had faint nuclei. Connection between individual cells not very close, they were separated without much difficulty. Little granular matter in field.

On comparing the results of examination in the above cases, one is struck by the fact that the product of disease in seborrhœa capitis, that is the epithelium, presents microscopic characters quite different from those shown by the epithelium in seborrhœa of the body. The following table will show these differences:—

Seborrhœa Capitis.	*Seborrhœa Corporis.*
1. The cells stain deeply.	1. The cells stain poorly, possibly on account of oily matter in the field.
2. Average diameter .0333 mm.	2. Average diameter .0256 mm. to .0384 mm.
3. Contents only occasionally granular, and then very indistinctly so.	3. Contents highly granular, excepting in one case when ether was used.
4. Outline distinct and sharply defined. Usually flat, occasionally curled.	4. Outline frequently indistinct. About same as to flatness.
5. Nuclei common, large and distinct. Usually light, but in one case stained darkly.	5. Nuclei rare and faint. Occasionally their place seemed to have been taken by an oil globule; in other cases the minute nucleus was surrounded by a bright halo.
6. Occasionally granular matter in field.	6. Usually granular matter in field.

The following cases of psoriasis were examined in the same manner as those of seborrhœa just given.

CASE IX. *Psoriasis Corporis et Capitis.*—L. E., age 38. Typical case of generalized inflammatory psoriasis. *Body.* Scales taken from the forearm appeared yellowish-white with a dry, pearly lustre, were quite friable, disintegrating easily. *Microscopic examination.* Treated with water and aniline, the cells coloured well. Diameter varied between .0256 mm. and .0384 mm. They were, for the most part, small cell contents, not granular. Cells flat, not curling on edges. Outline usually smooth and regular, sometimes more or less jagged, edges not thin. Nuclei uncommon, usually small and indistinct, occasionally containing a central granule or nucleolus. Cells loosely connected. No granular matter in field. *Scalp.* Scales resembled precisely those taken from the body. They were yellowish-white and friable, but not quite as dry and powdery as the latter, owing probably to their admixture with sebaceous material. They were easily compressible under the glass cover, showing some oily streaks. *Microscopic examination.* Treated with aniline,

cells coloured well. Diameter varied between .0282 mm. and .0410 mm., usually small. Cell contents granular, not at all like fatty degeneration. Outline of cells usually smooth, occasionally thin and jagged. Decided tendency to fold together, and curl on the edge. Nuclei unusual, and when present commonly indistinct. Occasionally large, bright nuclei were observed, but these were rare. Cells loosely connected. Considerable granular matter in field.

CASE X. *Psoriasis Corporis et Capitis.*—J. A., age 66. An average case as to duration and appearance. *Microscopic examination. Body.* Treated with aniline and water, the cells coloured well. Diameter varied greatly, ranging from .0250 mm. to .0501 mm. Nuclei unusual and small. Some cells polygonal and regular in outline, most irregular, curled and folded on edges. Little granular matter in field. *Scalp.* Cells coloured pretty well. Diameter varied between .0395 mm. and .0501 mm. Cells generally transparent; a few had granular contents. Outline usually smooth and distinct, occasionally folded or curled on edges. Nuclei rare, small, and indistinct. Considerable granular matter in field.

CASE XI. *Psoriasis Corporis et Capitis; chronic.*—Kate R., age 21. Generalized psoriasis, mild and non-inflammatory. Three years' duration. *Microscopic examination. Body.* Treated with aniline and water, cells coloured well. Diameter varied between .0282 mm. and .0435 mm. Cell contents faintly granular. Cell outline smooth, occasionally curled on edges. Nuclei rare, small, and faint. *Scalp.* Coloured poorly. Average diameter .0280 mm. Cell contents decidedly granular. Outlines jagged. Flat, not curling on edges. Nuclei very rare. Not much granular matter in field.

CASE XII. *Psoriasis Corporis et Capitis.*—Kate F., age 29. Average case of inflammatory psoriasis. *Microscopic examination. Body.* Treated with water and aniline, coloured poorly. Smaller cells averaged .0307 mm., larger .0384 mm. in diameter. Contents not granular. Outline indistinct, curling on edges. Nuclei tolerably frequent, small, and pale. Cells closely adherent. No granular matter in field. *Scalp.* Cells coloured well. Average diameter .0333 mm. Contents not granular. Outline smooth and distinct. Many cells showed small, pale nuclei. Connection loose. Considerable granular matter in field.

Comparison of the foregoing notes of microscopic examinations in psoriasis, gives the following characters as tolerably constant: The usual appearance of the scales is more yellowish than those of seborrhœa, particularly the pearly-gray scales of S. capitis. They were ordinarily quite dry, friable, and almost powdery, occasionally, however, cohering with very considerable tenacity. The scales from the body were particularly dry, contrasting strongly in this respect with the oily, almost waxy appearance of the scales in S. corporis. Sometimes the cells took colour very well, often, however, they stained slightly, if at all. They were evidently less succulent than the cells of seborrhœa. The cells varied considerably in size, ranging from .0250 mm. to .0501 mm. in diameter. Two sizes were usually noted, a smaller, averaging .0250 mm. to .0307 mm., and a larger, averaging .0384 mm. to .0501 mm. The scales from the scalp contained, perhaps, the greater proportion of large cells. As regards cell contents, these were noted in one case as being granular, in

the others as faintly or not at all so. Certainly, nothing even remotely suggesting fatty metamorphosis could be observed. The cell outline was frequently irregular, with thin, indistinct, or jagged edges, though these were occasionally smooth and regular.

The cells in psoriasis corporis are generally flat, though occasionally curled and folded together; those from psoriasis capitis commonly show the latter aspect. Nuclei are rare, and when present are, with rare exceptions, small and indistinct. Considerable granular matter is observable through the microscopic field in psoriasis capitis, very little in P. corporis.

The following cases of eczema were examined in a manner exactly similar to that pursued in seborrhœa and psoriasis.

CASE XIII. *Acute Eczema Erythematosum Capitis et Corporis.*—J. C., age 65. Disease of some weeks' duration, generalized, almost universal, presenting the usual appearances. *Microscopic examination. Body.* Treated with water and aniline, cells coloured well. Diameter varied between .0307 and .0384 mm.; contents usually faintly granular. The uses of a higher power ×1000, showed the granular appearance to be due to wrinkling of the surface. No oil globules observed. Outline thin and not well defined. Cells usually flat, though some curled on the edge. Very few cells contained nuclei, and these were small. Occasionally a small dark point surrounded by a bright ring was observed. Cells easily separated. No granular matter in the field. *Head.* Cells coloured well. Size varied a good deal, smaller cells averaged .0307, larger oblong ones .0307 mm. by .0538 mm. Contents markedly granular. Cells quite flat, usually looked thick with smooth outline, occasionally thin with jagged edges. Nuclei rare and indistinct. Much granular matter in the field.

CASE XIV. *Eczema Squamosum Capitis.*—E. C.; no history. *Microscopic examination.* Cells thin and transparent, smooth and regular outline. Curled on edges in many cases. Distinct nuclei common. Connection of cells loose. Considerable granular matter in field.

CASE XV. *Eczema Squamosum Capitis.*—Julia L., age 18 months. Has suffered some months with impetiginous eczema, generalized over body. On head has recently assumed the squamous form. *Microscopic examination. Scalp.* Cell contents not granular. Cell outline distinct and smooth; curled and folded on edges. Nuclei rare and indistinct. Little granular matter in field.

Comparing the results of examination in these various cases of eczema, we find the following characters common to all, or nearly all. The cells were transparent, and took colour well. In only one case (eczema erythematosum) was their size accurately measured. In this case there seemed to be two varieties of scales, one composed of more or less regularly polygonal cells, the other of irregularly oblong cells. The former were the smaller; their diameter averaged .0307 mm. The oblong cells averaged .0538 mm. in length by .0307 mm. in width. The larger oblong cells from the scalp in this case were noted as granular, but in no other case were such contents noted. This may therefore be regarded as for some reason exceptional, and the epithelial cells in eczema may be stated to be transpa-

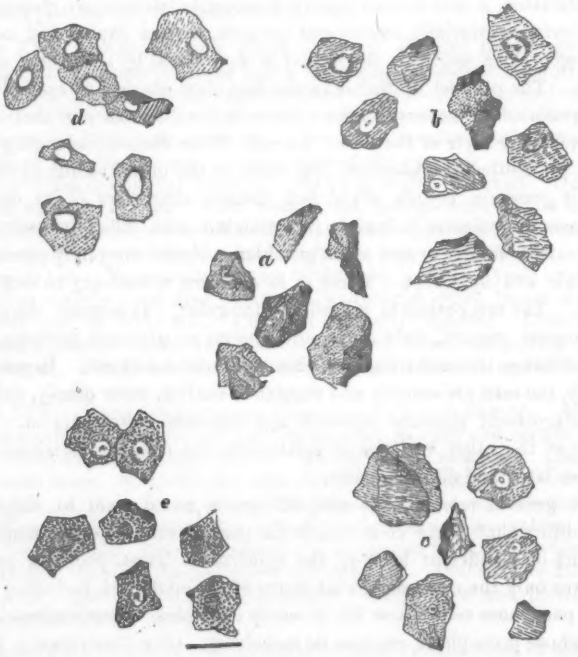
rent, and without oily or granular contents. In outline the cells were sometimes thin, irregular and jagged; in one instance, the exceptional one named, they were smooth and thick. In the latter case the cells were flat, in all the others folded and curling. Nuclei were faint and rare; in the case particularly alluded to above, the nucleus was frequently small and surrounded by a halo. The cells did not adhere. There was granular matter in the field in the cases of eczema capitis, but not in those of E. corporis.

Examining collectively the results of the investigations given above, with a view to comparing the relative character of the affections under consideration, it will be seen that they naturally fall into two classes. The first includes psoriasis capitis and corporis, eczema capitis and corporis, and seborrhœa capitis; the second is represented by seborrhœa corporis alone. The product of disease in the first class consists of epithelial cells and granular (sebaceous) matter; the cells for the most part derived from the epidermic layer of the skin. In each of the diseases belonging to this class, the epithelium resembles that found in the others, while at the same time it preserves certain slight but distinct characters of its own. In psoriasis the cells are yellowish, dry, staining with difficulty, and presenting contents faintly or not at all granular. Nuclei are rarely present, and are pale and indistinct. There is, in addition, a tendency to curl on the edges. The cell outline is jagged and irregular. In eczema, the cells are transparent, smooth, stain fairly, and present no granular contents. The cell outline is thin and irregular. Nuclei are faint and rare. In seborrhœa capitis, the cells are smooth and regular in outline, stain deeply, only occasionally present granular contents and these are indistinctly so. Unlike either of the other varieties of epithelium, the cells in seborrhœa capitis possess large and distinct nuclei.

The general resemblances and differences noted seem to suggest the probability that these cells are, in the case of each separate disease, the product of a different layer of the epidermis. Thus, psoriasis probably involves only the most superficial layers of the epidermis, including for the most part those cells whose life is nearly expended, whose nucleus is gone, and whose protoplasm has lost its succulency. (See illustration.) Eczema penetrates to a deeper layer, the cells involved are full and smooth on the edge, not contracted and jagged as in psoriasis. Their protoplasm is still active, it becomes stained with aniline, and a nucleus is more frequently observed. Finally, the cells of seborrhœa capitis are still more full of life, the nucleus is more common, the protoplasm more active, staining deeply under the influence of the colouring material. I am not prepared to say that the epithelium in seborrhœa capitis is derived from a deeper layer of the epidermis than that in the other affections examined, but that it comes from the lining portion of the sebaceous ducts, in part at least, is evident from the fact that on lifting an adherent scale of seborrhœa, one is able

at times to perceive that it includes an exact cast of the funnel-shaped opening of the sebaceous duct.

I must at this point express a doubt, suggested by the results of these examinations, as to the propriety of calling this affection seborrhœa at all. It does not consist essentially in an excessive flow of abnormal sebum, but in the exfoliation of epidermis, mingled indeed with sebaceous matter to a greater extent, perhaps, than is the case in the other squamous affections of the scalp, but nevertheless presenting epidermis as its principal pathological product.



a, Normal epithelium; *b*, psoriasis capitis; *c*, psoriasis corporis; *d*, seborrhœa capitis; *e*, seborrhœa corporis.

More truly a seborrhœa is the affection which I have placed in the second class. Seborrhœa corporis presents indeed so peculiar an aspect that I must give a few words to a description of the eruption itself. It consists essentially in certain circumscribed patches of light or dark-yellow greasy scales, usually found upon the chest or upper part of the back, easily detached from the skin underneath, leaving a red shining and greasy surface. Examined microscopically, the scales are seen to contrast strongly with those of seborrhœa capitis (see illustration). They stain poorly, partly

on account of the excess of oily matter always present in the field. The contents of the cells are highly granular in all cases; the outline of the cells is flat and indistinct; nuclei are rare and faint; there is usually a large quantity of granular matter in the field. These cells may in fact be regarded as in a state of fatty metamorphosis, and as directly derived from the sebaceous glands, and the affection has evidently a much closer affinity with seborrhœa oleosa than with the affection known as seborrhœa sicca capitis.

ART. VII.—*A Contribution to our Knowledge of Beef-tea.* By HORACE BINNEY HARE, M.D., Physician to the Episcopal Hospital, Philadelphia.

THE general use which has been made of the various forms of beef-tea, and the difference of opinion with regard to its value, seem to me to justify the belief that some addition to our knowledge of the composition of the forms most commonly in use will be of interest to the profession.

While working in the Chemical Laboratory of the Pathological Institute in Leipzig, under the direction of Professor F. Hofmann, I was led to make certain analyses of what is commonly known as Beef Extract made according to the receipt given below. During the past winter I pursued the investigation further, and now present the results of my analyses.

As will be seen by a glance at the tables, only the amount of albumen and salts was directly estimated, while the figures given under "other organic matter" were obtained by subtraction of the albumen known to be present from the amount of organic matter found by incineration.

In the soups made without heat no gelatin was to be expected, and in the others, if any was present, which is to be doubted, it has been estimated together with the albumen and colouring matter.

The method of analysis employed, chosen after some experiment, was the same in each case. After the preparation of the soup, a weighed quantity of it was treated with a large excess of alcohol, enough in each case to precipitate the albumen completely. The mixture was allowed to stand twenty-four hours, then filtered, the albumen dried and weighed, then incinerated, and the weight of the ash subtracted. When the soup contained fat, which was, however, the case only when heat had been employed in its preparation, this was carefully removed after the liquid had grown cold and before the analysis was begun.

Another portion of the soup was weighed, evaporated to dryness, and the solid matter thus obtained. The solid matters incinerated gave the relative amounts of organic and inorganic matter.

In Table A will be found the results of the analysis of what I have termed Beef Extract, which was prepared, according to the usual receipt, as follows: Meat which had been as far as possible deprived of its fat and tendinous matter, by scissors, was cut up in very small pieces, weighed, and placed in a jar loosely stoppered. This jar was then placed in a vessel containing cold water, which was gradually brought to the boiling point.

TABLE A.—*Analysis of Beef Extract.*

	I.	II.	III.	IV.	Average.
Grammes, meat	699	362	450	795	
" soup	245	152	179	267	
Composition of soup—					
Water	92.90	93.72	92.62	92.57	92.95
Solids	7.10	6.28	7.38	7.43	7.04
100 parts solids—					
Organic	78.88	79.53	80.84	81.40	80.16
Salts	21.12	20.47	19.16	18.60	19.84
100 parts soup—					
Water	92.90	93.72	92.62	92.57	92.95
Albumen and coloring matter	1.71	1.39	1.60	1.18	1.47
Other organic matter	3.90	3.61	4.37	4.87	4.18
Salts	1.49	1.28	1.41	1.38	1.39
Extracted from 100 parts meat—					
Albumen and colouring matter	0.59	0.58	0.63	0 39	0.54
Other organic matter	1.36	1.51	1.73	1.63	1.55
Salts	0.52	0.78	0.56	0.46	0.58

When the meat had lost its red colour and become blanched—a result usually obtained at the end of two hours—it was removed, thoroughly pressed, and the fluid which was obtained, added to what had collected in the jar, passed through a hair-sieve. This soup has an extremely pleasant taste, and is, as is well known, much relished by patients. It is comparatively rich in the salts of meat, poor in albumen, and, as can be seen by reference to the table, extremely expensive, 100 parts of meat yielding but 36.54 parts of soup. As in the other tables, the amount of each ingredient obtained from 100 parts of meat is given, that the relative expense of the different soups may be seen.

The beef-teas of which the analyses are given in Table B. were made according to the receipt of Dr. Pavy, which varies hardly at all from that of Dr. Letheby, excepting that more heat is likely to be applied under the directions of the latter, and a soup obtained having, if possible, less value.

As will be seen by the tables, varying quantities of water were employed, but Number III. is the analysis of a soup prepared according to the directions in Dr. Pavy's book.

I give the receipts of these two gentlemen with their remarks.

TABLE B.—*Analysis of Pavy's Beef-tea.*

	I.	II.	III.
Grammes, meat	367	450.5	363
" water	753	530.3	364
" soup	799.8	679.6	512
Composition of soup—			
Water	97.32	96.71	97.38
Solids	2.68	3.29	2.62
In 100 parts solids—			
Organic	82.40	80.12	80.55
Salts	17.60	19.88	19.45
In 100 parts soup—			
Water	97.32	96.71	97.38
Albumen and colouring matter	0.81	0.74	0.98
Other organic matter	1.40	1.89	1.13
Salts	0.47	0.66	0.51
From 100 parts meat—			
Albumen and colouring matter	1.76	1.11	1.38
Other organic matter	2.99	2.85	1.32
Salts	1.01	0.99	0.72

Dr. Letheby[1] says:—

"The richest of all soups is obtained from finely chopped lean meat, soaked for an hour or so in an equal weight of cold water, and then gradually raised to the boiling point. After simmering for about a quarter of an hour, it should be pressed and strained from the insoluble muscular fibre. In this condition it contains the whole of the soluble constituents of meat, amounting to about five per cent. of the meat used; so that a pint of soup from a pound of meat contains just four-fifths of an ounce of meat extract."

Dr. Pavy[2] gives a similar receipt:—

"Mince finely one pound of lean beef, and pour upon it, in a preserve jar or other suitable vessel, one pint of cold water. Stir, and allow the two to stand for about an hour, that the goodness of the meat may be dissolved out. Next stand the preserve jar or other vessel in a saucepan of water, and place the saucepan over a fire or a gas stove, and allow the water in it to gently boil for an hour. Remove the jar, and pour its contents on to a strainer. The beef-tea which runs through contains a quantity of fine sediment, which is to be drunk with the liquid after being flavoured with salt at discretion. The jar or other vessel in which the beef-tea is made may be introduced into an ordinary oven for an hour, instead of being surrounded by the water in the saucepan. Beef-tea thus prepared represents a highly nutritive and restorative liquid, with an agreeable rich meaty flavour. It is a common practice amongst cooks to make it by putting it into a saucepan, and boiling it or simmering it over a fire; but the product then yielded constitutes in reality a soup or broth instead of a tea."

He also states that "all that is wanted is that the cold infusion should be heated to about 170° Fahrenheit. This just suffices to coagulate the albumen and colouring matter, and thus deprive the product of its character of rawness."

This is true; but it is far better to deprive the soup of its raw character when we can preserve the albumen. This cannot, as far as my experience goes, be done without first removing the meat from the soup.

If this is attended to, we get the soup of which the analyses are found in Table C.

[1] On Food, by H. Letheby, M.A., Ph.D., etc., 2d edition, New York, 1872, p. 170.

[2] A Treatise on Food and Dietetics, by F. W. Pavy, M.D., F.R.S., London, 1874, p. 511.

TABLE C.—*Analysis of Cold Extract of Beef.*

	I.	II.	III.	Average.
Grammes, meat	338	393	449	
" water	340	393	449	
" soup	355.2	470	464	
Cubic centimetres, soup			455	
Composition of soup—				
Water	96.09	96.70	95.53	96.11
Solids	3.91	3.30	4.47	3.89
In 100 parts solids—				
Organic	86.87	84.39	88.28	86.51
Salts	13.13	15.61	11.72	13.49
In 100 parts soup—				
Water	96.09	96.70	95.53	96.11
Albumen and colouring matter	2.53	2.78	2.56	2.545[1]
Other organic matter	0.87		1.31	0.82[1]
Salts	0.51	0.52	0.52	0.516
From 100 parts meat—				
Albumen and colouring matter	2.65	3.32	2.64	2.645[1]
Other organic matter	0.92		1.35	1.12[1]
Salts	0.57	0.62	0.53	0.55

It is not uncommonly used, and is mentioned by Lady Barker in her little work on cookery.

The best method for obtaining this is, I believe, the following :—

A pound of meat, previously freed from fat and tendinous matter (for which purpose scissors will be found very convenient), is cut in small pieces, by a sausage-meat cutter when possible, and then allowed to stand covered with its own weight of water. The meat and water should be stirred from time to time, and kept in a room at the ordinary temperature. Heating the mixture moderately, hastens the process, though it has no other advantage, and has to be done with so much care that in ordinary hands it had best be avoided. At the end of two hours, or when the meat seems blanched, the clear red fluid is poured off, the meat thoroughly pressed in a cloth, or, when much has to be made, in a small press such as is used by druggists, the fluid from the meat added to that previously poured off, and the whole brought just to the boiling point. When boiled, the albumen shows a tendency to form a large clot. This must be broken up by rapid stirring with a fork. When allowed to stand we have a clear fluid of a pale yellow colour, at the bottom of which lies a quantity of very finely divided albumen. Before pouring the soup out for use it must, of course, be thoroughly stirred.

[1] Average of I. and III.; owing to accident, the albumen was not determined directly in II.

TABLE D.—*Analysis of Cold Extract of Beef with 50 per cent. Additional Water.*

	I.	II.	Average.
Grammes, meat	448	458.7	
" water	672	668	
" soup	592[1]	720.8	
Cubic centimetres, soup	580	715	
Composition of soup—			
Water	96.22	96.16	96.19
Solids	3.78	3.84	3.81
In 100 parts solids—			
Organic	87.	88.27	87.635
Salts	13.	11.73	12.365
In 100 parts soup—			
Water	96.22	96.16	96.19
Albumen and colouring matter	2.39	2,38	2.385
Other organic matter	0.89	1.01	0.95
Salts	0.49	0.45	0.47
From 100 parts meat—			
Albumen and colouring matter	3.16[1]	3.74	3.45
Other organic matter	1.17[1]	1.58	1.375
Salts	0.64[1]	0.71	0.675

TABLE E.—*Analysis of Cold Extract of Beef with 100 per cent. Additional Water.*

	I.	II.	III.	Average.
Grammes, meat	456.2	407	405	
" water	919.5	814	810	
" soup	954	792	810	
Cubic centimetres, soup	950	790	800	
Composition of soup—				
Water	97.01	97.31	97.33	97.216
Solids	2.99	2.69	2.67	2.783
In 100 parts solids				
Organic	86.70	87.90	87.06	87.22
Salts	13.30	12.10	12.94	12.78
In 100 parts soup				
Water	97.01	97.31	97.33	97.216
Albumen and colouring matter	1 87	1.41	1.68	1.653
Other organic matter	0.72	0.96	0.65	0.776
Salts	0.40	0.32	0.34	0.353
From 100 parts meat—				
Albumen and colouring matter	3.91	2.76	3.36	3.343
Other organic matter	1.50	1.62	1.30	1.473
Salts	0.84	0.62	0.68	0.713

As regards taste, the soup is by no means inferior to that made with water and heat, although it is in this respect in no way comparable to that made, as in A, without water.

In order to see whether it was possible to decrease the expense of the beef-tea without impairing its nutritive properties, I have tried varying proportions of water, as will be seen by reference to Tables D and E. In D, the meat was treated with one and one-half times its weight of water;

[1] I. was pressed less than II. and hence a less yield for the beef employed. The loss in albumen, etc., is nearly proportional to that in the quantity of soup.

in E, with twice its weight. The results are given, and from them I should prefer to use one and one-half pounds of water for each pound of meat, the process of preparation being precisely that given under C.

Although containing a vastly greater amount of albumen than the beef-extract A, this beef-tea contains less salts and extractives. In order to supply its deficiencies in this respect, and at the same time increase its percentage of salts, I would suggest the addition of a given amount of Liebig's extract. This, as is well known, contains no albumen and as little gelatin as possible, but is rich in salts and in organic matters.

Its percentage composition, as given by Letheby, is—water, 18.56; extractives, 59.36; salts, 22.08. The percentage of inorganic salts in the beef-tea made without water, which may fairly be taken as a standard of flavour, is 1.39, and of organic matters not albumen 4.18. If, therefore, we add to 100 parts by weight of soup, made as in D, about 5 parts of Liebig's Extractum Carnis, we get a soup containing about 1.4 per cent. salts and nearly four per. cent. of organic matter not albumen, in addition to the 2.3 per cent. of albumen. The addition of Liebig's extract improves the colour and adds to the flavour—both matters of importance.

To accomplish this result it would be necessary to add to every pint of beef-tea, made according to D, about six drachms of Liebig's South American extract. Of course, any other proportion may be used, and any desired amount of salts and extractives be administered. I may mention that a drachm of Liebig's Extract filled an ordinary teaspoon, which I used, level with the edge.

Liebig's beef-tea, the formula for which is taken from Dr. Pavy, is made as follows:—

Take half a pound of raw lean beef (chicken or any other meat may be similarly used) and mince it finely. Pour on to it, in a glass or any kind of earthenware vessel, three-quarters of a pint of water, to which have been added four drops of muriatic acid and about half a saltspoonful of salt. Stir well together, and allow it to stand for an hour. Strain through a hair sieve, and rinse with a quarter of a pint of water. It is to be taken cold, or, if warmed, must not be heated beyond 120° Fahr.

It will be observed, Dr. Pavy remarks, that no cooking is here employed, and although much richer in nutritive material and more invigorating than ordinary beef-tea, the raw-meat taste that it possesses sometimes causes it to be objected to.

In Table F, I have given the results of analyses of beef-tea made with the addition of 1 cubic centimetre of hydrochloric acid, but without salt. They cannot, therefore, be taken as fair examples of Liebig's soup, but show a large percentage of albumen. I see no good reason why this should not also be heated to the boiling point before administration, if the patient objects to it in its raw form—but hope to have the opportunity of continuing my investigation of the subject further.

TABLE F.—*Analysis of Beef-tea made with Hydrochloric Acid.*

	I.	II.	III.	Average.
Grammes, meat	455.6	419	421.5	
" water	460.1	419	421.5	
" soup	484.7	402.5	416	
Cubic centimetres, soup	475	400	415	
Composition of soup—				
Water	94.92	95.34	95.62	95.29
Solids	5.08	4.66	4.38	4.70
In 100 parts solids—				
Organic	88.62	89.01	88.55	88.72
Salts	11.38	10.99	11.45	11.24
In 100 parts soup—				
Water	94.92	95.34	95.62	95.29
Albumen and colouring matter	4.50	3.03	2.86	4.14[1]
Other organic matter		1.12	1.02	
Salts	0.58	0.51	0.50	0.53
From 100 parts meat—				
Albumen and colouring matter	4.78	2.91	2.82	4.14
Other organic matter		1.07	1.00	
Salts	0.61	0.49	0.49	0.53

In conclusion, although the calculations of the percentage from 100 meat are marred by the error inseparable from any means which I possessed of expressing the soup, I think it hardly large enough to prevent conclusions of some value from being drawn from them.

If beef-tea be made according to the receipt of Dr. Pavy, it is probable that not more than 1.5 parts of albumen are derived from 100 parts of meat; while by the cold process under D, not less than 3 per cent. are obtained.

If, therefore, the composition of the first is satisfactory, and we may content ourselves with these quantities of albumen, the same result may be attained by the use of half the amount of meat—a very considerable saving; while if, as is more probable, we wish to administer as much food as possible, we obtain in the cold process not only a greater percentage of albumen, but a considerably greater quantity of soup.

I may add that since from the analyses published it would seem, to say the least, rare to find cow's milk containing more than 3.03 per cent. of casein and albumen taken together, or than 0.78 per cent. of salts; the results of my analyses of beef-tea render it fair to infer that the latter, properly made, falls but little behind milk in value as food so far as these ingredients are concerned, though it will require, of course, physiological experiment to decide the question absolutely.

[1] Average albumen for II. and III. 2.94; per 100 meat, 2.86.

ART. VIII.—*Some Remarks on Diseases Peculiar to Mountainous Regions.* By W. H. GARDNER, M D., Asst. Surgeon and Bvt. Major U. S. Army; Post-Surgeon Fort Union, New Mexico.

IN Professor Aitken's valuable work on the Science and Practice of Medicine he has given us many valuable facts regarding the distribution of disease on the surface of the globe, together with the effects of climatic influences upon the inhabitants, but as yet I have seen no work which treats of the diseases caused by the deficient atmospheric pressure and the rarefied air of mountainous regions, and it is to report some diseased conditions believed to be due to these causes that the present article is written.

If we consider air-breathing animals as complex machines, constructed to conform to certain physical conditions, and requiring a definite amount of oxygen and other elemental substances to carry on the constant changes required for the perfect working of all the varied parts of the machine, we would say without a second thought that no great change in these physical conditions (environment) could be made, or no great proportion of any one essential element abstracted, without seriously impairing, or stopping altogether, the working power of the machine. Yet observation teaches us that the tissues and organs of animal bodies are made of such mobile and transmutable material that interference with action in one part is speedily taken up and compensated for by increased or diminished action in some complementary or connected organ; or the organs themselves affected in a short time become changed in a certain measure to agree with the altered conditions; if the wind is not "tempered to the shorn lamb," the irritation to its skin causes increased flow of blood to the part and consequent hypertrophy, and eventually the shorn lamb becomes tempered to the wind. But this alteration in animal bodies to agree with altered surroundings (acclimatization) is only possible when the necessary changes can be brought about in so gradual a manner that the tissues and organs affected by them can accommodate themselves to these changes without so serious an interference with their functions or nutrition as to cause their inflammation or degeneration. If we take an Esquimau from the frozen shores of Greenland, and suddenly transport him to the hot, humid forests of Brazil, no one could reasonably expect him to live through the first year, and yet we are frequently witnesses to quite as radical changes being made by the orders of physicians, many of whom, without thinking of the vast difference in altitude, temperature, condition of atmosphere, etc., send their patients with phthisis from the Atlantic and gulf sea-boards, where the barometer stands at 30 inches, and the air is almost always saturated with moisture, to the changeable mountainous regions of Colorado, New Mexico, and Arizona, where the barometer seldom stands higher than 24 inches, and the temperature frequently varies 40° in twelve hours, depend-

ing on whether the wind blows from the dry, parched plains of Texas, or from the snow-crowned summits of the Rocky Mountains; one of the best commentaries upon which practice is the following paragraph which we cut from a Colorado newspaper a short time since:—

"Six human bodies, in metallic caskets, were shipped east yesterday on the Kansas Pacific train. To offset this, nine invalids arrived last evening."

If we take the superficial area of a man of medium size as equal to sixteen square feet, and the atmospheric pressure at fifteen pounds to the square inch, we will have a pressure on the body of 34,560 lbs.; now the atmospheric pressure is directly dependent upon the constitution of the air and the weight of the gases which compose it, and it can easily be seen that no great change can be made in the weight of these gases without altering the amount of pressure, and so causing serious alterations in the functions of respiration and circulation, both of which depend to a very great extent upon the simple physical conditions of the constitution, and weight of the atmosphere.

But the disturbance arising from the removal or loss of atmospheric pressure, though I believe the chief cause of hæmoptysis, epistaxis, and menorrhagia, yet seems to be less of an evil and one more quickly compensated for than the deficient oxygen in the rarefied air of great altitudes.

Every process of vitality manifested by animal bodies, not even excepting thought and volition, is evinced by the destruction of tissue-elements, the débris of which appear in the circulating fluid, chiefly in the form of carbonic acid, and for the removal of this poisonous compound the blood is subjected, at short intervals, to the action of the atmosphere, when it gives off its carbonic acid and absorbs oxygen in its stead. The air we breathe consists of nitrogen and oxygen in the proportion by volume of 79.1 of the former to 20.9 of the latter, and these proportions have been found to be constant and invariable over all parts of the globe, and at all elevations; the only essential difference between the air at the sea-level and that from mountainous regions being that the higher we ascend the less dense the air becomes, *i. e.*, the further apart the atoms composing it are held, and the greater volume of it there is required to give the same weight. If now of the dense atmosphere at the sea-level, it is necessary to make eighteen respirations per minute, and take into the lungs twenty cubic inches at each inspiration to furnish sufficient oxygen to the blood, and through it to all the tissues of the body, it can easily be seen that when the air is *less* dense, and contains *less* of each of the gases which compose it, there must be either a greater volume of air taken in at each inspiration, or a greater number of inspirations per minute to furnish an equal amount of oxygen, and if one or the other of these compensations be not made, symptoms of poisoning by carbonic acid soon make their appearance.

The symptoms of poisoning by this gas are described as follows:—

"The earlier symptoms are a sense of weight, uneasiness, or pain, often violent, in the head; ringing in the ears, giddiness, sometimes vomiting, a great disposition to sleep, a rapid loss of strength, so as to be unable to continue upright, a great difficulty of breathing, the senses are dull, and there is a partial or total loss of sensibility. In advanced cases, the breathing is occasionally stertorous, and froth issues from the mouth. Coma is perfectly established, interrupted briefly in some instances by delirium, and in others by slight convulsions."—*Beck's Med. Jurisprudence*, vol. ii. p. 153, 1863.

If now we compare this assemblage of symptoms with those that take place in persons who go quickly from a less altitude to a greater, either by climbing to the tops of high mountains, or by the less fatiguing method of ascending in balloons, we will find them almost identical with the added symptoms occasioned by the loss of atmospheric pressure—there is the same difficulty in breathing, the same feeling of fatigue, numbness or tingling in the extremities, ringing in the ears and intense headache, and from the loss of external pressure frequently hemorrhages from the mucous membranes of the air-passages.

The ascent of the balloon "Zenith" from Paris last spring, which resulted in the death of two of her crew, and the very narrow escape of the third, must be regarded as the "experimentum crucis" which demonstrates beyond a doubt that human beings cannot safely ascend to a height of 8600 metres without resorting to some *reliable* apparatus to supply oxygen for respiration, and also some appliance to counteract the great loss of pressure at that immense height. Opinion seems to be still divided as to the (efficient) cause of death in the cases of MM. Sivel and Croce-Spinelli, according to the Paris correspondent of the *London Medical Times and Gazette*. The Academy of Medicine attribute the deaths to the extreme rarefaction of the air, whilst the Academy of Sciences maintain that it was due to asphyxia; M. Gaston Tissandier, the only surviving one of the crew, coinciding in the opinion held by the Academy of Medicine. The principal facts noted in both the fatal cases were, "bleeding from the mucous membrane of the mouth and lungs, which was accompanied by extreme lassitude, and temporary paralysis of the respiratory muscles, which proved fatal."

There can be but little doubt that deficient oxygen, and deficient atmospheric pressure each had a share in producing the fatal termination.

From these preliminary remarks it will be apparent that the diseases *peculiar* to mountainous regions are either due to—

1*st*. Deficient atmospheric pressure, or,

2*d*. Deficient oxygenation of the blood.

Of those due to the first-named cause the chief are epistaxis, hæmoptysis, menorrhagia, and nasal and bronchial catarrh. They occur most frequently in persons who have recently come into the country from a lower altitude, and usually upon those days that the barometer stands the lowest.

Epistaxis is most frequently met with among young and vigorous adults. I have seen many cases of it among recruits coming into the

country from the recruiting rendezvous in the Eastern cities; in some instances it is troublesome from the frequency of its recurrence, but is generally easily controlled by free purgation, low diet, etc.

Hæmoptysis is most common among patients with pulmonary consumption, who have come out to this country in search of health in obedience to the orders of physicians. In the first case I was called to attend it was rapidly fatal, the patient being dead before I reached him; in the next case alarming hemorrhage had set in whilst the patient was crossing the Raton pass on the main stage road between Los Animas, Colorado, and Fort Union, New Mexico, and had continued with but slight intermissions until he arrived at this post. When I first saw him he was pallid and almost bloodless, but the hemorrhage was still going on. I succeeded in checking it after a time with tinct. ferri chlor., and then informed him that his life depended on his getting to a lower altitude as soon as possible. In several other cases that have come under my observation their histories were not materially different from that last given; hemorrhage from the lungs had appeared shortly after reaching the altitude of 6000 feet. It should also be stated that in the *most*, if not *all* of these cases no hæmoptysis had appeared before reaching this altitude. I have a patient now under my charge—a young recruit from New Orleans—in whom hemorrhage from the lungs first appeared a few days after arriving at this post, and has recurred at intervals ever since whenever the barometer descends to the neighbourhood of 23 inches; in this case there is no history of inherited tendency to phthisis in his family, nor any evidence of tubercles in the lungs.

Menorrhagia is most frequently seen in plethoric, full-blooded women between the ages of thirty-five and forty years. I have attended a good many cases, and found it usually to subside readily upon the exhibition of ergot followed by purgations and low diet, though it seems liable to recur at each menstrual period. I am also of the opinion that the "Chilie," or Mexican red pepper, which is eaten in such quantities in this country, acts as a *vascular* stimulant to the uterus. I am very confident that I have seen it act as an irritant to the male bladder, and have known attacks of dysuria to follow its use.

Nasal and *Bronchial Catarrhs* are very prevalent at all seasons of the year; they seem to be partly due to deficient atmospheric pressure, and partly to the constant winds that keep the air filled with particles of irritating dust, frequently of a highly alkaline nature. Both diseases are exceedingly unmanageable and exceedingly prone to return upon the least exposure.

The diseases arising from *deficient oxidation of the blood* are—

Paralysis, rheumatism, and perhaps also typhoid fever.

The form of paralysis is unusual, and it may not be uninteresting to describe the symptoms as they appeared in my own case.

Shortly after arriving at this post (Fort Union, N. M.) I was attacked with fulness of the head, ringing in the ears, mental hebetude, confusion of ideas, dizziness, and headache. Thinking these symptoms might be caused by constipation of the bowels, torpidity of the liver, or dyspepsia, I took a mercurial cathartic and followed it up with a dose of Rochelle salt. This relieved the oppression for a day or two, but it soon returned, the dizziness and confusion of ideas increased, and a feeling of numbness and tingling commenced in the fingers of the left hand and gradually extended until it involved the whole left side, even the muscles of the tongue being affected so that I could not articulate; there was also oppression of breathing, throbbing of the carotids, and slight dilatation of the pupils, with a pulse of 80, and tolerably full. The only medicine at hand was a bottle of chloroform, and, thinking the symptoms might be due to spasm of the cerebral or pulmonary vessels, I poured a drachm or two upon my handkerchief and inhaled it, when the disagreeable symptoms promptly subsided. The next day I mentioned my case to Dr. M——, U. S. A., who was here at that time, and, thinking the trouble might be caused by malaria, he advised me to commence quinia and arsenic, which I at once did, taking twelve grains of quinia and one-tenth of a grain of arsenic each day; but in the course of five or six days, while under the full influence of these medicines, I had another attack in all respects similar to the first, coming on after a hearty dinner, which was relieved by an active emetic. Shortly after this second attack I was called to attend a case of midwifery at Mora (a little town in the mountains, fifteen miles to the N. W. of the post, and considerably higher in altitude). The woman was delivered without difficulty, and I had been in bed and asleep for more than an hour when I was awakened by a third attack, which was more prolonged and severe than either of the others. Upon this occasion I inhaled chloroform, I took ipecac, bromid. potass., brandy, and indeed almost all the articles of the materia medica that I had with me, but with little or no good effect; the symptoms, however, gradually subsided and went off completely by morning. It was only after this third attack that I discovered the disease was due to imperfect oxidation of the blood, and commenced a rational treatment.

The next case was that of a lady, aged 35 years, the wife of an army officer passing through the post. A few hours after arriving here she was seized with difficulty of breathing, headache, dizziness, and confusion of ideas; numbness and tingling commenced in the righ hand and foot, and gradually increased until there was more or less anæsthesia over the entire right side of the body; the paralysis did not at first affect the nerves of *motion*, for she could move either hand or limb when requested to do so; there was also throbbing of the carotids, flushed face, and widely dilated pupils on both sides, and a pulse of 76 and tolerably full; the tongue was clean and red, but was protruded with hesitation and difficulty, was not

curved to either side. The anæsthesia of the right side gradually passed into *clonic* spasm of the muscles of the leg and arm, and eventually subsided in two or three hours under the use of derivative sinapisms to the wrists and ankles, and an emetic of ipecac followed by ten grain doses of chlorate of potass. every hour in two ounces of water—there was no history of uterine disease, hysteria, or epilepsy in this case, nor was there any return of the disease after leaving this post.

In the third case the symptoms were more or less apoplectiform; still it is here cited because I believe the origin of the disease to have been the same.

I was sent for at 2 o'clock A. M., to attend at the hotel here a man of about forty years of age, and of rather robust and healthful appearance; he was lying on the left side in a deep stupor and breathing stertorously; the pulse was 84 and rather full; the pupils of both eyes were closely contracted, and a bloody mucus was issuing from his mouth. He seemed insensible to irritants, such as pricking or pinching, and only moved the toes slightly when the sole of the foot was tickled. The history of the case threw but little light upon the subject. He was known *not* to be an epileptic, he was a temperate and even abstemious man, and was known to have gone to bed perfectly sober; there was no smell of liquor, laudanum, chloroform, or any other narcotic on his person or about the room; the only facts that seemed to have any bearing on the case were that he had arrived at Fort Union only two days before from Cincinnati—and that he had eaten a hearty supper before going to bed. He recovered perfectly in a day or two under the use of derivative sinapisms, free purgation by croton oil, and full doses of potass. chloratis largely diluted with water.

The cases above cited are only specimens of the many that have come under my notice since I have been in this country. Sometimes the disease is of very mild form, and is limited to a partial anæsthesia of one or other extremity, and I have seen *two* cases in which it went no further than the hand and forearm of one side; in others again it is at once fatal, as in the case of General G———, U. S. Army, who died of this disease in Santa-Fe, New Mexico, in January of the present year; in still other cases, after the alarming symptoms have somewhat subsided, some portion of the cerebro-spinal system is found to be permanently impaired. A short time since a patient, who had been sent to this country on account of his health, came to consult me about "a kind of paralysis that had come on since he came here," which proved to be *progressive locomotor ataxia*, and I have now under treatment a case of aphasia, the result of a stroke of paralysis which occurred here last June.

Rheumatism is exceedingly common, not only among persons who have recently come into the country, but also among the indigenes. It is most frequently seen of the subacute type, though the acute articular form is by no means rare; so far but one case has come under my personal observa-

tion in which there was any cardiac complication. In this instance there was a well-marked endo-cardial murmur with the first sound of the heart, and subsequent symptoms of embolism of the profunda femoris of the right side.

Typhoid fever is the great scourge of the Mexican towns; it occurs among the youth and young adults of both sexes, and is usually complicated with pneumonia. A form of this fever not materially different from the well-recognized type, is frequently met with among mountaineers and miners, called mountain fever; in the only case in which I had an opportunity of making an autopsy, I found the usual lesions of typhoid.

In all of these diseases one essential element in their causation is deficient oxidation of the blood, and to supply this deficiency the treatment should be in a great measure directed. In the paralysis we should bleed without hesitation if the pulse indicates that it is necessary to reduce the vascular tension in order to prevent the giving way of a vessel and injury to the brain or spinal cord, but I believe this will seldom be found necessary. Theoretically the most speedy and efficacious remedy would be the inhalation of oxygen gas. In a communication of M. Paul Bert to the French Academy two years ago, detailing some experiments made upon himself in regard to the effects of changes of barometric pressure, he states that "with a mixture of 45 per cent. of oxygen he could bear without injury, a pressure of only 338 millimetres, which corresponds to the height of Chimborazo, and with 63 per cent. he was able to stand 250 millimetres (less than ten inches)."

Again, in poisoning by chloroform, no remedy has been found more quickly efficacious than inhalations of oxygen; but as the diseases here treated of usually occur in those mountainous and inaccessible localities where oxygen *per se* can rarely be obtained, we have to furnish it to the blood through the stomach, and I believe the best medicine for this purpose in the majority of cases is the chlorate of potass.; I am confident that I have seen this salt exert a marked benefit over the paralysis in less than six hours. When, however, the blood is plentiful but of poor quality, and lacking in red corpuscles, we must resort to mineral acids, and particularly the nitro-hydrochloric, and also to the tinct. ferri chlor. In the rheumatism and typhoid fever found here, the nitro-hydrochloric will be found of great benefit. *If* these diseases are caused by an imperfect or interrupted retrograde metamorphosis of effete tissue from want of oxygen to carry on the necessary changes, by supplying the oxygen in an available form we only add the one link needed to complete the physiological chain, but whatever may be the *modus operandi* the *fact* of its beneficial action is undeniable.

I am well aware that the foregoing remarks will be received by many persons with surprise, for the mountainous region of Colorado, New Mexico, and Arizona has long been considered one of the most healthy

regions on the continent, and especially a region where phthisis and other lung diseases were unknown, and while I grant that phthisis is rare among the indigenes, yet in my practice of only two years in New Mexico I have seen several undoubted cases, and I believe that any physician who has practised medicine in this region will agree with me in stating that pneumonia, bronchitis, and throat diseases, and also rheumatism and typhoid fever, are not only exceedingly prevalent even among the native inhabitats, but are also attended with a very high death-rate. How much of this sickness and mortality is due to climatic influence and how much to their manner of life is yet an open question and one not so easy to answer, and while I believe that imperfect oxidation of the blood acts as a constant and unavoidable source of disease, yet it must be recollected that all the dwellings in this country are made of sun-dried bricks (adobes), and all are more or less damp, and as to real healthful cleanliness, either of their persons or surroundings, it would seem that such an idea had never entered the minds of the inhabitants.

These remarks are necessarily crude and imperfect, partly from the limited field allowed for observation and partly from absence of any statistics, but I think a sufficient number of cases has been quoted to make it fully apparent that physicians have exercised too little care in sending patients to a country they know nothing about, and that thereby they have brought discredit upon themselves and the profession at large, and have caused the loss of many valuable lives.

FORT UNION, N. M., March 7, 1876.

ART. IX.—*On Spasm of the Heart, as a Cause of sudden Death, and its Relation to Angina Pectoris.* By FREDERICK D. LENTE, M.D.

C. B., aged 35 years, station agent of the H. R. R. Rd. Co., at Cold Spring, was taken sick about the eighth of April, 1875, and sent for me on the 10th. I diagnosed mild typhoid fever. He was never sufficiently ill to keep his bed all day, and had some relish for food all the time. Temp. 102° to 103°; pulse but slightly accelerated; bowels natural. He had a slight hacking cough almost from the first. After the lapse of a fortnight, his fever subsided, but he was quite feeble, and found that he had lost eighteen pounds in weight. He went out before it was prudent to do so, visited a sick brother in the city, returned the same day, and for two days endeavoured to attend to business. He had a relapse; the fever assuming the same mild course. Temp. 102°–103°. The cough was more annoying, and a mild anodyne expectorant mixture was prescribed. This was all the medication, except one mild cathartic and a simple tonic at the time of his relapse, when his appetite totally failed. This restored it to some extent, and he acquired some relish for his food.

May 3*d*, his wife informed me that he had a sudden attack in the afternoon. He had taken a little milk-punch, while sitting up in his chair,

in the sitting-room, and immediately complained of faintness and dyspnœa, and desired the windows to be thrown open; which was done. When I made my next visit, and the attack was mentioned, finding him doing as well as usual, I attributed it to nervousness and excitement, as his child lay very ill with meningitis in the next room, and his mind was harassed by other cares and annoyances. In consequence of the continued cough, and his wife's uneasiness about it, I made two thorough examinations of his chest, and found nothing abnormal. Dr. Murdock did the same, our last examination being on the 4th, the day preceding his death.

On the 5th, at 7 o'oclock A. M., was called to him and found him dead. I suggested a coroner's inquest and an autopsy; and the suggestion meeting with approval, the examination was made at 3 o'clock P. M. by B. D. Taylor, M.D., U. S. Army, assisted by Dr. Murdock, and superintended by myself.

Surface pale, rigor mortis perfect; extremities cold to near the trunk; abdomen warm. Temp. in axilla 88°.

Abdomen. On slitting up the *ileum* Peyer's plates were seen to be moderately enlarged, and one or two small ulcerations partly healed. The *liver* natural, except a slight congestion; *kidneys* the same, the left being decidedly enlarged. Stomach healthy; *spleen* small.

Thorax. Lungs perfectly normal. But little fluid in the pericardium. *Heart* small, and *very pale.* Considerable fatty deposit. Cavities entirely empty, no clot, no fluid, no stain; valves and muscular structure healthy.

Head. Nothing worthy of note. *Spine* not examined.

Now, what did the autopsy warrant us in saying to the Coroner, when asked by him "what is the cause of death?" Taken by itself, no very obvious cause. We all remarked the peculiar shrunken and anæmic appearance of the heart, and spasm was at once suggested as a probable cause of death. While the autopsy was being continued, I proceeded to inquire more fully, of the wife, into the nature of the attack thirty-six hours before death, and which I had heretofore considered as of little importance. She stated that *he was very faint, his countenance anxious and deathly pale, his lips blue, his hands pale and shrunken.* The evidence of spasm of the heart was now sufficiently clear to warrant an opinion as to the cause of death, and the verdict of the Coroner was in accordance with this.

At about this stage, the father of the deceased arrived, and stated that at the age of 22 years, his brother was suffering from typhoid fever at Hudson, N. Y., and at the end of four weeks was pronounced convalescent, though very weak. While the doctor was announcing this opinion in an adjoining room, they heard a peculiar sound, and on re-entering the sick-chamber, found the patient dead. He further stated that, at the age of 42 years, his mother died suddenly, when apparently in good health, and while conversing with him.

Dr. Ainsworth of the Army, late of the resident staff of Bellevue Hospital, now stationed at the Military Academy, relates, from memory, the following particulars of a similar case, which occurred in his division.

The woman was found dead in her bed, at the morning round in what was then Ward 24. The nurse could give no history of the case other than that she had been brought into the ward during the previous night, com-

plaining of pain in the abdomen, and nausea. Her symptoms did not seem to be sufficiently severe to justify the calling of the doctor at that hour, and she was not therefore seen by any physician.

I made the autopsy three hours after the discovery of her death. The encephalon was normal. The abdominal and pelvic viscera, though very carefully examined, showed no signs of disease except a slight congestion of one kidney. The great vessels, both of chest and abdomen, presented no signs of disease. The lungs perfectly healthy. The condition of the *heart* was specially striking, and afforded the only clue to the cause of death. The tissue of the heart and of its enveloping membrane was perfectly sound, but the heart itself was *firmly contracted*, and its cavities all completely emptied of blood; nor were there any of the usual clots. In fact, if the heart had been opened and cleaned of its contained blood, it could not have been freer of that fluid than it was at the autopsy.

The literature of "spasm of the heart" is exceedingly meagre; in fact, at the present day, it seems hardly to be recognized as a pathological entity. Dr. A. Flint, in answer to a letter of inquiry on the subject, says: "I cannot furnish you, from my own experience, any case of sudden death fairly attributable to spasm of the heart. I suppose that, in cases of sudden death due to suspension of the heart's action, the condition is generally paralysis from distension, or arrest of action through the *par vagum*. Aside from the experiments relating to the action on the heart of digitalis in poisonous doses, I cannot, at this moment, refer to literature bearing on the subject." Dr. Alonzo Clark says, in answer to a like inquiry, "I cannot aid you much in your inquiry regarding spasm of the heart. In post-mortem examinations, it is not uncommon to find the heart contracted and empty. But I have not been led to regard this as anything more than a natural contraction, the last act of life. In certain cases of tetanus, during a spasm, I have listened for the heart's sounds, and, for a few seconds, have found it silent and pulseless (perhaps in spasm). I have, once or twice, noticed the same thing after poisonous doses of strychnia. I do not know that anybody has written upon the subject."

Until after the occurrence of the case which led me to investigate the subject, I had also forgotten that Heberden and Latham discuss spasm of the heart in its relation to angina pectoris; and lately,[1] Dr. Osgood has extensively referred to the opinions of various authors on the pathology of angina, and incidentally to the conflicting opinions as to spasm, in common with other alleged causes of this singular disease. Latham says "there is a form of dyspnœa, which, from its suddenness, its severity, and the pain of approaching death which attends it, is apt to be confounded with angina pectoris. From what I read in books, and from what I hear in my intercourse with medical men, I suspect that they both pass popularly for the same thing. But it is most needful that our ideas of each

[1] Am. Journ. Med. Sci., Oct. 1875.

should be kept separate." The two, he says, are naturally distinct, though one may be complicated with the other. It will be observed that my patient complained of a recurring dyspnœa of a severe but transient character. (He had complained, as I afterwards discovered, to a friend, of attacks of difficult breathing and distress, for two or three weeks); and the severe attack, preceding his fatal one by thirty-six hours, was characterized by urgent dyspnœa. His anxiety about his sick child, and other matters, which were weighing heavily upon him, prevented him probably from complaining to me of a symptom which did not chance to occur during my visits. The obscurity involving the pathology of these cases, whether we call them *angina* or by whatever term, and the startling fact that a man, apparently in perfect health, and, indeed, known to be free from organic disease, may, in a few days, or in a few minutes even, die from it, naturally makes us eager to seize upon any fact which may lead us to an explanation of the immediate cause of death in some at least of the cases. I, therefore, feel justified in quoting a few of what Latham calls "the sad and interesting particulars" of a case under the care of Dr. Bucknill. "Up to within a very few hours before his (the patient's) death, both body and mind seemed equally to give proof and promise of health. He still took his accustomed pleasure and refreshment in strenuous exercise. His thoughts were still busily employed upon the highest subjects, conceiving and composing with perfect ease, rapidity, and power. He retired to rest at midnight, June 11, 1842, feeling and believing himself to be in perfect health." Yet within three hours after, he was dead. Dr. Bucknill states that, when he entered the room, the patient was almost free from the terrible pain from which he had suffered, was perfectly calm and collected. He conversed freely, and yet his pulse could scarcely be felt. Under stimulants externally and internally, the cold extremities became warm, and the pulse "natural." "He asked me again," says Dr. Bucknill, "what the pain was." "I told him I believed it to be spasm of the heart." He said, in answer to a question, "Yes, my father died of disease of the heart." He then asked many pertinent questions with regard to the causes and consequences of disease of the heart. The pain would then seize him with great intensity, and then suddenly disappear. In one of these paroxysms he died; the pulse ceasing before respiration. The autopsy, as usual, revealed nothing which could explain the sudden accession of the symptoms, and the sudden death. The heart was rather large, the muscular structure was extremely attenuated. It is a noticeable fact that the heart was very *flaccid* and *flat*. It contained but little blood, and that fluid. There were no coagula of any kind in it. Now, let us ask, what more likely to produce such symptoms than *spasm*? What other condition would be competent to produce them? But the condition of the heart (post-mortem) was not such as we *usually* find in spasm. Can the heart, after death from its spasm, relax? No

one can answer positively. In this case, the autopsy was made forty-eight hours after death, in very hot weather, and decomposition was well advanced. It is very probable that such a heart would, under these circumstances, relax.

But death may probably occur from spasm of the heart, and yet the cavities contain a considerable amount of blood; that is, there may be *degrees* of spasm of this organ as of other muscles; the highest degree producing death, as we have seen, instantaneously, when the heart will be found empty and contracted, if examined soon after death. A less degree will produce such a spasm as will arrest action more or less completely, and the patient may recover or die. If he dies, the cavities will be found containing more or less blood. And the symptoms will be those of anæmia of the brain. This "retardation and accumulation of blood in the cavities of the heart" Parry refers to *syncope*, and the latter to *diminished energy* of the heart, caused by organic disease. He therefore calls the disease "syncope anginosa." This would be a sort of cardiac paralysis. But, in many cases, there is no organic disease; this point is now well settled; neither has the condition of the patient been such as to lead one to suspect paralysis. They are frequently in good health. Besides, paralysis almost always occurs, even when the patient is greatly debilitated, only on his making some exertion, slight though it may be, generally on attempting to assume the erect or sitting posture, as in diphtheria and pneumonia, etc. And, in these cases, no pain is complained of, nor would we expect actual pain from paralysis. The death is generally too sudden for any intelligible expression; but if any, it is a feeling of intense exhaustion. Flint[1] seems to deny the existence of *degrees* of spasm, as he thinks that "a spasmodic condition of the heart sufficient to occasion such prolonged as well as intense pain would be incompatible with life." But the pain is not so very prolonged, but recurrent, as in the case just narrated, in which also the almost static condition of the heart was indicated by the pulse ("could scarcely be felt"). Latham[2] asks "what, then, is its real nature?" "Dr. Heberden," he says, "reports, after vast clinical experience of the disease, 'that it seems to pertain to *distension*,' and that he evidently meant by 'distension' what we understand by *spasm*." I believe it is Prof. Wm. H. Thomson's idea that some poisons, like aconite, veratria, etc., and also shock, kill by spasm of the heart; the heart not closing its cavities completely, but partially, so as not to allow of sufficient dilatation, and thus inducing anæmia. The remedy he considers to be opium. Dr. Alonzo Clark reported a case of aconite poisoning, in which, all other remedies failing, he injected morphia subcutaneously, and saved the patient.

The writer had a case more sudden, in some respects, than Dr. Buck-

[1] Diseases of the Heart. [2] Diseases of the Heart.

nill's, in the person of a lawyer, forty years of age, and in fair health, though he had had one or two moderate attacks before the fatal one. He had suffered from rheumatism, but no disease of the valves existed. Yet he died in great agony before I could reach him, though not far away, and summoned at once. No structural disease was discovered at the autopsy. It was many years ago, and I cannot remember the condition of the cavities as to containing blood, or whether contracted or distended.

It may be objected, that had my patient, C. B., died of a painful disease like spasm of the heart, he would have given some evidence of a struggle, or made some noise sufficient to rouse those near him. No one was very near him; but spasm may kill instantly and quietly, as in the following case from Latham:—[1]

R. P., about 55 years, was in the enjoyment of his wonted health, when, one day, after his morning's shooting, without any extraordinary fatigue or exertion, he felt, at dinner, an unusual pain in the region of the heart. He retired into his library, and the pain soon ceased. He then begged to be left alone until tea-time. In less than an hour his wife returned into the room, and found him lying upon the sofa just in the position she had left him. She believed him asleep, but found him dead. "The autopsy revealed nothing that could account for his death but a thin, fat heart." Here pain was the sole symptom, and it is presumable, as Dr. Latham says, that it proceeded from spasm of the heart, for we know of no other cause. Neuralgia, of itself, would not cause death.

Although writers are not disposed to admit spasm of the heart as a cause of death, they frequently afford evidence unintentionally of the fact, and also incidentally admit its possibility. In his late treatise on "Electricity in Nervous Diseases," Dr. F. Fieber, of Vienna, in speaking of the efficacy of galvanism in different spasmodic affections, enumerates "spasms of the heart" (proceeding from the cardiac plexus) as one of these. Dr. Stokes (*Diseases of the Heart*) says: "Little as is known of spasm of the heart, that little is opposed to the idea of angina pectoris being caused by it." But in a note to the chapter on "Rupture of the Heart," he remarks: "The same observer (Prof. Smith) has found the heart in tetanus not only so firmly contracted as to cause obliteration of the cavity of the left ventricle, but twisted on itself so as to present a spiral condition, from the extreme contraction of the oblique muscular fibres." A precisely similar condition has been found in the hearts of reptiles poisoned by digitalis. (H. C. Wood, Jr.)

There can be no question as to the cause of death in such cases as the above. In some important and interesting experiments conducted by Drs. Taylor and Lauder Brunton, about eighteen months ago, on the effects of the venom of different serpents, they found, says Weir Mitchell, that "in rare cases the death was by spasm of the heart, but that it was usually due to paralysis of centres."

[1] Lectures on Subjects connected with Clinical Medicine, by P. M. Latham.

It is a significant fact that, in four out of five cases of *angina pectoris*, reported by Dr. Osgood, of Philadelphia, in the number of this Journal for October, 1875, it is noted that the *left* radial pulse was much smaller than the right, sometimes altogether obliterated. In the remaining cases he does not state whether it was so or not. In none of the cases was there any organic disease discoverable except a fatty degeneration in one. In these cases the painful sensations were all on the *left* side. "This condition of things" (the different size of the arteries) "led me to suspect," says Dr. Osgood, "vaso-motor spasm in the left arm." Nothnagel recognizes spasm of the heart as the cause of angina pectoris, but thinks it secondary to arterial spasm. Dr. Osgood's cases would seem to strengthen the probability of this view.

The effect of nitrite of amyl, far beyond that of any other remedy, in relieving the paroxysms of angina, seems to point to *spasm* as its usual cause. It has been very generally successful, and I am in the habit of advising my patients to keep it by them all the time; and the little glass globules or capsules in which it is now put up in doses, are very convenient. Dr. Osgood found it the only reliable and prompt remedy in his cases. The paroxysms of epilepsy are due to a spasm of the cerebral arteries, and are arrested at once, if sufficient warning is given, by this drug; so in spasmodic asthma.

In all the cases of angina recorded by Dr. Latham, and in many of those recorded by others, the heart was soft and flabby, and the coronary arteries generally much diseased. It might be supposed that such hearts would be subject to paralysis rather than to spasm. But, under what circumstances do spasms of other muscles come on? In cholera, the muscles are feeble, and drained of blood. In death from hemorrhage, as in animals bled to death, convulsions usually precede it. "The anemic condition," says Dr. Geo. B. Wood, "strongly predisposes to convulsions." Wolff attributes angina pectoris to "imperfect innervation of the heart." A muscle, then, in a healthy and vigorous condition, is not liable to spasm.

The literature of spasm of the heart being so meagre, I may be pardoned for introducing here a *resumé* of Latham's arguments in favour of its existence as a pathological entity, and its intimate connection with angina pectoris. "Spasm is always accompanied with pain; and pain and spasm, wherever they are, disable the parts which they befall. Colic stops the peristaltic movements of the bowels. Cramp forbids the hands to handle, and the feet to walk. But the heart is a muscle, and its functions flow from its attributes as a muscle. Now, we are in search of something in the heart, which, as the concomitant of pain, may be disabling to its natural functions. This we find in spasm. In its spasm of smaller degree the heart fails to close freely on the blood, and to impel it freely into the arteries. In its spasm of greater degree it fails

to impel it altogether." "Herein we discover an adequate explanation of the chief phenomena of angina pectoris. It is a *spasm of the heart.*"

Heberden sums up as follows: "1. It comes on suddenly, and goes suddenly. 2. It has long and complete intermissions. 3. Wine and spirituous drinks, and opium, afford great relief. 4. It is increased by mental agitation. 5. It exists for years without other injury to the health. 6. At first it is not excited by exercise in a carriage or on horseback, as is usually the case with scirrhus or inflammation (organic disease). 7. The pulse is not quickened in the very paroxysm. 8. The paroxysm attacks soon after their first sleep; a frequent event in diseases which proceed from spasm."

Before concluding I will adduce one more instance of death apparently from spasm of the heart, as it indicates that fatal results of anæsthetics may be due to this cause. The case is reported in the May, 1875, number of the *British Medical Journal*, and was under the care of Dr. James Hardee, of Manchester. A delicate boy of sixteen years, in the Manchester Workhouse Infirmary, had had too operations under chloroform, and came near dying in the second. A third simple operation became necessary. Took brandy one ounce, and then four drachms of ether "on a piece of lint placed on a folded towel, and held pretty closely to the face. He inhaled the vapour more quickly than usual. In about four minutes he seemed to be ready for the operation. Immediately after, and before the operation was begun, Dr. Hardee noticed the respiration, which he had been closely watching, suddenly cease; at the same moment an extreme pallor came over the face, and the pupils became suddenly dilated. Mr. Poultney, the house-surgeon, on placing his finger on the radial artery found the pulse imperceptible. All efforts at resuscitation failed. The autopsy showed all the organs healthy. The *cavities* of the heart *quite empty.*"

Although, like angina pectoris, spasm of the heart may occur when the heart is, to all appearance, sound, it may also, like that disease, happen to a heart which is already crippled by organic disease; and partly, perhaps, mainly in consequence of this. Therefore, whether we admit that some of the deaths in angina result from spasm or not, when we know that a heart is the seat of structural change, whether it be muscular, valvular, or arterial, it behooves us to bear in mind, in giving a prognosis, the possibility of sudden death; for as it was formerly quite common for physicians to predict sudden and early death in almost all *organic* cardiac affections, it is now equally common for them to exclude sudden death altogether in their prognosis of these cases.

Dr. Balfour, in his recently published *Clinical Lectures on the Heart*, discusses briefly the relation of spasm of the heart to angina, and does not agree with Latham and Heberden, but inclines to the opinion of Parry, Stokes, and Walshe, that the peculiar symptoms, and death when

it occurs, are due to inhibitory paralysis. He refers mainly to cases in which there have been repeated attacks, and the heart, after death, is found flabby and dilated. But he does not allude to such a case as that of C. B., where the heart is in a quite different condition.

SARATOGA SPRINGS, June to Sept., PALATKA, FLA., Nov. to May.

ART. X.—*An Automatic Method of Opening the Eustachian Tube and Airing the Tympanum.* By H. S. SCHELL, M.D., Ophthalmic and Aural Surgeon to St. Mary's Hospital, Philadelphia.

FOR more than a year I have been in the habit of using a method of inflating the tympanum which seems to me to possess some advantages. This method is based upon the fact that during the act of yawning, and especially if the mouth be kept closed, as in a suppressed yawn, a sensation of movement or slight clicking sound will be experienced in the ears.

I generally direct the patient to keep the lips tightly closed, and to draw down the throat and even to separate the jaws slightly, as if trying to yawn without being observed. The effort usually produces the yawn itself, and if, immediately after the long inspiration which accompanies the act, or at the beginning of expiration, the nostrils are closed with the fingers, air will be felt to fill the tympanic cavities.

The tympanum will remain inflated for some time, often uncomfortably if any amount of force has been used, but may be quickly eased by swallowing the saliva once or twice with the mouth shut. The obvious effect of the inflation can be limited to either ear by closing the external meatus of the other tightly with the unoccupied hand.

The *modus operandi* of the process is as follows: In the act of yawning, as observed in a mirror, the base of the tongue is depressed or fixed, the soft palate is elevated or fixed, and the isthmus of the fauces is very much narrowed by the posterior pillars being strongly drawn towards the middle line. From the shape of a broad arch the isthmus faucium shrinks into a slit half an inch wide and the posterior pillars become straight and rigid.

While this narrowing is in progress a clicking sound is heard in the tympanum, evidently owing to the separation of the walls of the tube, and then inflation may be easily performed. It seems from this that the principal, if not the only agent in producing the effect is the palato-pharyngeus muscle through that portion of it which arises from the cartilage of the Eustachian tube, the so-called salpingo-pharyngeus. The salpingo-pharyngeus does not necessarily contract simultaneously with the main portion of the palato-pharyngeus, for I find that in my own person I can voluntarily

narrow the isthmus faucium to about half an inch in width without affecting the Eustachian tube, unless I make the effort to yawn. In the former case the muscle expends its force upon the thyroid cartilage and pharynx, and the base of the tongue rises. In the latter, the base of the tongue being fixed, the muscle acts in the opposite direction, the salpingo-pharyngeus has a *point d'appui*, and the tube is pulled open.

But the influence of the palato-pharyngeus upon the soft palate is at the same time opposed by the lavator palati, it may be also to some extent by the tensor palati, for the palate is raised or fixed, and as the two latter muscles have some attachment to the cartilage of the tube, it is possible that they also contribute something to the particular result in question. At all events, in the effort to yawn all the muscles of the throat apparently participate, but the peculiar sound which accompanies the opening of the tube occurs when the action of the palato-pharyngeus is most evident.

As the patency of the Eustachian tube produced in this way is not merely momentary, but continues during the yawn, there is no need of hurry, and inflation can be made very deliberately and softly or strongly as occasion may require. It is only necessary that it should be done while the yawn lasts, and not after it is over.

In many cases it is not necessary to inflate at all, the mere opening of the mouth of the tube being sufficient to let the air rush into the tympanum.

It may be that the patient will not be able to accomplish the inflation of the tympanum by this method upon the first trial, but will almost certainly be able to do so after a few efforts, and, having once succeeded, the repetition becomes easy. After practising the method for a short time, it will be found that it is not necessary to make the complete yawn, but that sufficient control is obtained over the muscles about the isthmus of the fauces to open the mouth of the tube at will.

The various applications of this method will naturally suggest themselves to the aural surgeon. I have found it, however, especially useful in those inflammatory conditions of the middle ear which are accompanied by constantly accumulating mucous or purulent secretion. If there is at the same time perforation of the membrana tympani, the discharge of the secretion into the external meatus may be secured at frequent intervals, and the entire aural tract may be kept clean by the application of medicated washes. To apply these it is only necessary to draw a portion of the liquid up the nose until it is felt to run into the pharynx, to hold the head inclined so that the diseased ear is underneath, and to practise inflation as before.

In cases of deafness resulting from closure of the tube from recent swelling about its pharyngeal extremity, this method offers an easy means of obtaining patency of the canal from time to time without pain or annoyance.

A comparison of this plan of airing the tympanum with some of those in general use will show that it may be preferable in some cases.

In the application of the Valsalvian experiment there is always considerable difficulty in forcing air into the tympanum, and the experiment often fails altogether. In any case it requires great straining, the vessels of the head and face become turgid with blood, and the membrana tympani appears more congested than when inflation is performed by other means. The experiment, however, can be made by the patient himself, an important point in many cases of tympanic disease where the application of remedial measures is frequently needed in the absence of the surgeon.

In Politzer's method, beside the objection to drinking from a tumbler common to many persons at a clinic, there is always the nozzle of the air bag to be inserted into the nose, a very unpleasant proceeding to most individuals. In addition the time occupied by swallowing is so short that it is often difficult to hit the exact moment for the air douche, which is also generally given with more force than is beneficial.

In the modification of Politzer's plan, recently proposed by Gruber, the obnoxious air bag is retained, and the Eustachian tube is not always opened in a perfectly satisfactory manner.

The Eustachian catheter, while the most certain of all means, of course irritates the throat and pharyngeal opening of the tube, more or less. It is not requisite, however, to mention the dangers arising from its unskilful manipulation, because, like any other instrument, it should not be used on the living subject, except by the educated hand.

If the membrana tympani be examined during the performance of inflation by any of these methods, a little arborescent twig of vessels is seen to run down the handle of the malleus, and more or less congestion appears to be inseparable from the act; but if the pharyngeal extremity of the tube is simply opened in the manner previously described, and atmospheric equilibrium is allowed to establish itself on the two sides of the membrana tympani, there seems to be absolutely no injurious reaction upon the local circulation.

1004 VINE ST., May 20, 1876.

ART. XI.—*Hereditary Multiple Exostosis; Four Cases, with Remarks.* By V. P. GIBNEY, A.M., M.D., of the Hospital for the Ruptured and Crippled, New York. (With two wood-cuts.)

AMONG the many cases of interest presenting from day to day at the out-door department of the Hospital for the Ruptured and Crippled, the following, from an hereditary point of view, seem peculiarly interesting,

and consequently I have endeavoured to make the description, to a certain extent, minute. Case II. was the first observed, and was brought to the hospital by a neighbour, who feared that the child's prospects for becoming a hunchback were very good, and therefore deemed a spinal brace the one thing indicated.

CASE I.—Albert R——, æt. 34 years, a Prussian musician, came under observation March 13th, 1876. He has the appearance of being a hearty vigorous man; has always enjoyed good health, and has long since ceased to feel any alarm about the tumours which now so disfigure his extremities. The peculiar hardness, the relation sustained to the long bones, and the history, remove all question of doubt as to the diagnosis.

I succeeded in finding no less than seventeen exosteal growths, located as follows: symmetrical tumours on the crests of the spines of the scapulæ; a spike-shaped process 2½ inches in length, with a tripodal base, on the inner aspect of the right humerus, upper fourth; a ridge-like prominence near the distal extremity of the first phalanx of the middle finger of right hand, dorsal and radial surface; small node near proximal extremity of same phalanx; large sessile tumour seated on anterior surface of right femur, lower third, measuring around base 10½ inches, over surface, vertically, 4½, transversely 5; closely attached to the last named, at its inner surface, a bilobate growth 2½ inches vertically by 2 inches transversely; a well-defined bony ridge on the outer side of femur an inch or so above external condyle; an oval-shaped tumour, likewise sessile, near the outer surface of the left femur, at the junction of the middle with the lower third, measuring around base 12 inches, vertically 5, transversely 5½; a ridge above the external condyle, symmetrical with the one on opposite limb; a large ovoid mass, growing apparently from the posterior surface of the right tibia, giving to the calf a circumference of 18½ inches against a circumference of 15 inches at the same point fellow limb, while the size just below the knee is 14 inches, above malleoli 9; two abnormal tuberosities about the size of a half walnut from the upper fifth of the fibula; from the upper fourth of the tibia again, anteriorly, three or four about the same size as those on fibula; a potato-shaped tumour firmly attached to the head of the left tibia, giving a base measurement of 8 inches, vertical 4, and transverse 3.

Fig. 1.

Case I.

It will be seen that the only attempt Nature made at a symmetrical disposition of the exostoses was on the scapulæ and the femora, that she furthermore was careful to locate the same where they were likely to produce the least injury; the only two causing any marked interference with

the joints being the growth near distal extremity of the phalanx, subluxating the finger outward, and the one near left knee-joint producing genu-valgum. The right calf has the appearance of exuberant development, and the superficial veins are decidedly varicose. On the outer side of right leg, near the apices of the tumours, are two or three superficial cicatrices, the result of ulceration, the patient informs me, four years ago. Two similar cicatrices are situate on the inner aspect of left leg. The left upper extremity, as well as the ribs, is free from any deformity.

The urine gave a specific gravity of 1028, and a microscopical examination failed to detect anything abnormal. The patient, in reply to questions concerning the early development of the growths, states that his parents first observed "small lumps" on his lower extremities when he was four years of age; that they grew slowly until he arrived at the age of puberty, and then ceased to grow. The process on the humerus he thinks, however, was larger when he was ten years of age than it is now, and from his tenth year till puberty decreased in size to its present magnitude. He claims to have been subjected to no treatment. His father, he reports, was similarly affected, and a brother, æt. 40, now living in Germany, has "hard tumours on his legs." His wife has none, though three children are the subjects of the next three cases reported.

CASE II.—Lizzie R., æt. 11 years, well developed, and enjoying a fair degree of health, presented March 8, 1876, for examination. Eighteen distinct exostoses were discovered. Comparatively large-sized tumours, two and a half inches transversely by one and a half vertically, seated on the crests of the spines of the scapulæ, presented well-marked deformity. Immediately in front of the bicipital ridge of each humerus can be felt a distinct tumour about the size of a peanut. On the palmar aspect of the right ulna lower third, on the radial side of the first phalanx of the index finger, and on the same side of the second phalanx of the middle finger, nodes were observed. On the left side, above the epiphysis of radius, a node stood out quite prominently, while the dorsal surface of the first phalanx of all the fingers near the proximal extremity, and the third metacarpal bone distal extremity presented small nodes. The tenth rib on left side, near its middle, was the seat of a node. A small tumour above the internal condyle of the left femur, and another on the upper third of the tibia, completed the list.

The law of symmetry was not observed in this instance, except on the scapulæ. I could get no history of rheumatism or injury. The father's attention was first directed to these growths after she had turned her third year, and the nodes on scapulæ and rib were the first to appear. No inconvenience is experienced except a frequent headache, which I am unwilling to believe has any special connection with the dyscrasia. The parents are under the impression that the tumours are increasing in size.

CASE III.—Charles R., æt. 9 years, seen March 15, 1876. The boy is hardy and well developed, his head being unusually large. The tongue is thick, and apparently hypertrophied, giving a decided lisp to his speech. In this case I made out twenty-eight, varying in size from a pea to a walnut, located in the following order: near the acromial extremity of each clavicle, about the centres of the sixth and eighth ribs on each side, along the spine of each scapula, near the epiphyses of both radii and both ulnæ, symmetrical nodes are to be found. The forearms, likewise, present a marked outward curve. Unmatched tumours are located near the insertion of the deltoid right side, on the dorsal surface of the first

phalanx of the ring finger, near the proximal end, and on the palmar surface of the first phalanx of the ring finger.

There are several unmatched tumours on the lower extremities, and two or three approaching to symmetry. They are so well defined, however, that I thought a better idea could be given by representing them in the accompanying wood-cut. On the right side an oval tumour, seemingly symmetrical with the one on the left, can be seen above the internal condyle of the femur. This, however, is continuous with the condyle, and smaller than the other, which is two inches above the condyle, is elongated and ridge-like. The muscular development makes both more perceptible to the touch than to the sight. On the upper fifth of the tibia is seen a comparatively large conical protuberance, with a smaller one immediately below, which latter has a symmetrical growth on the left side. At the junction of the upper with the middle third of the fibula a bony excrescence can be easily felt, though it is not sufficiently large to be seen. A similar one, an inch or two higher, can be seen on the left side. Above each pair of malleoli are tumours very nearly symmetrical. On the left, above the external condyle of the femur, one can easily make out a conical exostosis. The urine gave a high specific gravity; in other respects it was normal. None of the tumours in this case were observed prior to the fourth year. While an infant he was exceedingly delicate, but since the second summer has enjoyed good health. It would seem from the history of this case, and from the curvature of one or two of the long bones, that a rachitic diathesis was present. I am disposed to regard it, for obvious reasons, merely a coincidence. Like his sister, he suffers much from headache.

Fig. 2.

Case III.

CASE IV.—Annie R., a plump, hearty looking girl, four years of age, was examined March 15, 1876, and on both clavicles, near the acromial end, small nodes, symmetrically placed, could be seen. The spines of the scapulæ presented the same prominences, only smaller in degree, as was observed in the preceding cases. None were discovered elsewhere. The father had only noticed these quite recently.

It may be well to state that I have examined the cranial bones of these four cases with some degree of care, and have failed to find any abnormal protuberances, except a soft wart-like tumour, about the size of a half nutmeg, on the crown of head in Case I.

No theme opens a wider field for speculation than heredity. We seek for causes in all departments of medicine, and after diligent search are apparently satisfied. Specifics in therapeutics, from time to time, render clear the subject of etiology, while post-mortem examinations frequently throw a flood of light on theories, and almost as frequently leave us still clinging to untenable ones. Many lesions of the nervous, as well as of the osseous system, are referred to that ultima Thule, syphilis, and when this scourge of humanity *unfortunately* fails to be present, we oscillate toward heredity. We then know that the father or great-grandfather was the subject of a like disease, and through some mysterious process propagated it to the descendants.

I have questioned the subject of Case I. very rigidly as to his ancestry, and have sought for some cause of this diathesis in his father, who seems to have been the first in the ancestral line thus affected. Three or four paternal uncles were soldiers in the Prussian army, and he thinks that his father served a term in early manhood. Some pathological writers think that the musket, as used in the Prussian service, induces near the deltoid muscle, with comparative frequency, a growth called the "drill bone." Yet even in the reported cases an osseous diathesis is said to have existed. The old man seems to have enjoyed excellent health, fell from a windmill, a distance of eighty (?) feet, receiving only a slight injury (this fall was six years after the birth of the son, whose history I have just recorded), and lived to an advanced age. In the absence of facts, then, I venture the opinion that a drill bone was occasioned while in the army, and that to his children and grandchildren were transmitted the deformities. This, at best, is only a fanciful theory, and I give it for what it is worth. In the family are two brothers both of whom are known to have exostoses, and three sisters, no one of whom is thought to have anything of this nature. In the third generation, however, the female descendants show, at a comparatively early age, tumours, both on the clavicles and the scapulæ.

I need not dwell on the pathology of this lesion, other than to refer those interested to the writings of Stanley, Virchow, Paget, and Billroth. The exostoses herein described are most likely of the spongy or cancellous variety. Those of the ivory variety appear on the bones of the face, skull, pelvis, and occasionally the great toe, and occur so seldom that they are classed by Billroth among the curiosities. The spongy exostosis is covered with a layer of cartilage, and ossifies toward the centre. At the age of puberty ossification ceases.

Passing over the question of diagnosis, I propose to devote a short space to the complications arising, meaning thereby the bones most frequently involved, and the injury mechanically to neighbouring parts.

Mr. Paget[1] reports the case of a boy in St. Bartholomew's Hospital, who had symmetrical tumours on the radii, humeri, scapulæ, fifth and sixth

[1] Surgical Pathology, p. 541.

ribs, fibulæ, and internal malleoli. On the ulnar side of the right forefinger, he had an unmatched tumour, which proved so inconvenient that, at the father's request, Mr. Lloyd removed the finger. The father of this child had as many, or even more, tumours, and all had existed from his earliest childhood. No direct ancestors, or any other children, had similar growths; but four cousins, one female and three male children of his mother's sister, had as many of them as himself.

In the same hospital, Mr. Stanley[1] had a case, male, æt. 31, with fifteen distinct exostoses, symmetrically located near the articular extremities of the legs and arms, the growths having begun in early infancy. He was a drunkard, and in his frequent falls bruised the exostosis near the wrist, inducing necrosis. A removal, with good results, is recorded. A half brother of this man had tumours similarly situated. The mother had married twice, and one son by each marriage inherited the peculiar diathesis.

In the Transactions of the Pathological Society of London,[2] Mr. Wm. Adams reports a case on which he operated for the removal of a bony tumour from the posterior surface of the right fibula. Profuse suppuration followed; but in six months the patient recovered.

In the service of Dr. Poore,[3] at the Charing Cross Hospital, a case occurred presenting exostoses at the sternal ends of clavicles, inferior aspects of the spines of scapula, the upper extremities of humeri, carpal extremities of the radii and ulnæ, points near one or the other extremities of most of the metacarpal bones, upper portions of femora below great trochanters, upper and lower ends of tibiæ and fibulæ. No one of these growths demanded removal. A child of this man, four years of age, appeared at the same time, and pathologically was a complete miniature of the father. Attention was first called to this child when nine months of age. The maternal grandfather and one sister were reported to have had similar tumours.

In my own report I find that the first case has one flat bone represented, but the seat of the tumour is at no one of the centres of development. The origin of the deltoid and the insertion of the trapezius are in intimate relationship with its base. Seven of the long bones are represented, the epiphyses of only three of which are involved, and the line of muscular attachment in no one of which is at all implicated. The second case, as well as the third and the fourth, gives the same flat bone as a point of lesion. Fifteen long bones in the second, nineteen in the third, and two in the fourth are involved. The epiphyses are in close proximity, but can scarcely be predicated as conjoined even. The muscular attachments are likewise undisturbed. An additional flat bone, the rib, I should have stated, in the second case, and four in the third, are found affected. It would seem, then, as I have previously intimated, that, when heredity figures to any extent, Nature very carefully selects those bones, and those points of a bone which are least likely to interfere with the functions of joints or muscles.

As opposed to this I shall very briefly refer to some instances where

[1] Med. Times and Gazette, vol. ii. 1853, p. 39.

[2] Vol. xxiii. p. 211.

[3] Lancet, Nov. 29th, 1873, p. 771.

heredity is not involved in the etiology, but where injuries or disease take an active part.

Mr. Stanley in his work on *Diseases of the Bones* reports a case with an exostosis on the humerus dividing the ulnar nerve. A second case he refers to wherein the exostosis grew from the posterior surface of the clavicle, pressing upon the subclavian artery, and thus simulating aneurism. Sir Astley Cooper's case[1] in which a bony growth from the sixth or seventh cervical vertebra compressed the subclavian artery is familiar. Andral[2] reports a case in which an exostosis from the body of a vertebra pressed upon the œsophagus. Dr. Reid[3] reports that a conical exostosis in a case under his care grew from the second cervical vertebra, and caused fatal compression and softening of the spinal cord. A boy in St. Thomas's Hospital[4] had an exostosis from the inner table of the skull, producing epilepsy, which was relieved by a trephine. Mr. Henry Arnott[5] removed a small bony tumour of this nature from the lower end of the right femur in a girl æt. 18, the pain and stiffness at the knee-joint being an indication for the operation. Erysipelas followed, and death supervened one month from the date of the removal. Symmetrical tumours were found post-mortem on pelvis, on each rib near both costal and spinal extremities, on sides of the bodies of the vertebræ, and on the lateral processes of the same. The first sign of any exostosis was at the close of an attack of acute rheumatism when eight years of age. In a case presented by me at the New York Pathological Society, March 24, 1875,[6] bony growths existed in the neighbourhood of the hip-joint, giving rise to some of the symptoms of morbus coxarius. The greatest number of exostoses found on any one individual was in the case reported by H. Ebhert,[7] sixty-five being the number. Acute rheumatism seemed to have been the immediate cause of so extraordinary a development. The long, short, flat, and irregular bones were duly represented.

As to treatment I know of nothing that is even reported as successful. In one case I have used lactic acid for a short time, with no satisfactory result to record. Removal, of course, is indicated if an exostosis interfere seriously with a joint or vital organ. A point of interest has been raised by Dr. John Chiene[8] in the treatment of pedunculated tumours by fracture. His point is that the growth thus broken off may be absorbed, and one case he reports, of a boy æt. 10 years, who fell while at play and broke a pedunculated exostosis loose from its attachment. Complete absorption was found to have taken place at the end of a year. Mr. Maunder,[9] on the strength of this report, forcibly broke an exostosis from

[1] Surgical Essays by Cooper and Travers, p. 128.
[2] Pathological Anatomy, Translation, vol. ii. p. 278.
[3] London and Edinburgh Journal Med. Sciences, March, 1843.
[4] Travers, Further Enquiry concerning Const. Irritation, p. 285.
[5] Transactions Path. Society Lond., vol. xxiii., 1872, p. 207.
[6] Medical Record, April 24th, 1875, p. 300.
[7] Deutsche Klinik, 1862, No. 9, p. 91.
[8] Ed. Med. Journal, July, 1874, p. 50.
[9] Lancet, Nov. 7th, 1874, p. 657.

the bone, located near the knee, with no unpleasant effects following the operation. He subsequently reported that the osseous tumour had re-attached itself to the bone, but at different points, so that the functions of the joint were undisturbed.

135 East 42d Street.

ART. XII.—*A Supposed Case of Rabies Canina treated with Strychnia and Woorara; Recovery.* By B. A. WATSON, M.D., Surgeon to Jersey City Charity, and St. Francis Hospitals, Jersey City, N. J.

SUNDAY morning, Feb. 6, 1876, between ten and eleven o'clock, I was summoned in great haste to see Mr. McC., of this city, aged about forty-five, a strong, able-bodied man of temperate and industrious habits, who had previously enjoyed uniformly good health. I found him in his sleeping apartment, a back parlor, suffering with a severe chill, which was accompanied by chattering of the teeth, violent retching, and the occasional vomiting of a little dark grumous fluid. There was suffusion of both eyes, equal dilatation of the pupils, marked congestion of the conjunctiva of the right eye, but slighter of the left, turgescence of the vessels of the face, giving the countenance a livid appearance. Respiration sighing, pulse frequent and irregular, and the tongue furred, grayish-white. He was highly nervous, apprehensive, and unwilling to be left alone. Says "there is a sensation of tightness or squeezing" over the præcordial region. In answer to my question, "how do you feel?" he replied, in a nervous, jerking voice, "I am all right—nothing the matter with me." He then called for a glass of water, which he took and tremblingly drank, evidently to convince me that he did not have hydrophobia.

I directed him immediately to be put in bed, well covered with blankets, mustard draught to be applied to the epigastrium, bottles of hot water to be placed around him, and the temperature of the room to be raised as soon as possible to 80° F.

I then withdrew from the room, and learned from the family the following history, viz.: On or about the 25th of November last, Mr. McC. was presented with a young Newfoundland dog, which appeared at the time to be in a healthy condition; it was playful and good natured, ate and slept well; but within a month exhibited signs of illness, becoming restless, frequently starting up from apparent sleep, growling, barking, and snapping at imaginary objects. Soon after these symptoms were observed, the dog bit the servant girl, both of Mr. McC.'s children, and a young nephew. Mrs. McC., being now terribly alarmed, informed her husband, when he came home at noon, that the dog was sick, and insisted that it should be sent away from the house. The husband endeavoured to quiet her fears, assuring her that he would examine the dog, and if anything were the matter with it he would send it off. He then proceeded to make the examination, and, while thus engaged, was bitten through the index finger of the right hand near the root of the nail. The examination being satisfactory, the dog was drowned. The wound readily healed. These events occurred about the 20th of December last. The servant girl[1] (previously

[1] See accompanying report of this case by Drs. McLoughlin and Culver.

mentioned as the first one bitten by the dog) died at St. Francis Hospital, in this city, Feb. 1, 1876, of *unmistakable rabies*.

Mr. McC. had been complaining for a week or ten days prior to this visit. He had been low-spirited, melancholy, nervous, irritable; had taken little food, complained of shooting pains through various regions of the body, and other abnormal sensations which he was unable to describe fully.

Feb. 5th, he went to the Jersey City Opera House at the solicitation of his brother, who thought the entertainment given there might possibly dispel the melancholy, and relieve the nervous agitation with which his brother was suffering.

Having remained there a short time, he informed his brother that he was too ill to stay any longer, and then went home. The patient attributed all these symptoms to a cold with which he supposed himself to be suffering. This morning, Feb. 6th, he arose at the usual time, took more breakfast than at any time during the previous week, but feeling unwell, he lay down and soon fell asleep. After sleeping two or three hours he suddenly awoke, and calling his family, a messenger was immediately sent for me. I responded promptly to the call, and found him in the condition previously described.

Having obtained the foregoing history of the case, I ordered one-twelfth ($\frac{1}{12}$) of a grain of strychnia every three hours, and directly sent a messenger to Prof. Flint, of New York, requesting him to meet me in consultation at his earliest convenience. 1 P. M. I again saw the patient, and found his pulse down to 80; respirations only five per minute; inspirations deep and sighing. Complains of a sharp lancinating pain in the left arm and hand. Retching and vomiting relieved. Less constriction of the respiratory muscles. Says he is feeling better. 4 P. M. Consultation with Prof. Flint. Pulse 76; respirations 11; inspirations still sighing. Does not complain of any "sensation of tightness or squeezing" over the præcordial region, or pain in the hand or arm. It was determined to continue the treatment with strychnia for the present. 7 P. M. Condition same as at 4 P. M. Ordered one ounce of Rochelle salt.

Feb. 7th, 9 A. M. Pulse 78; respirations 12; inspirations slightly less sighing than yesterday. Bowels moved twice during the night. Face less livid. Less congestion of the conjunctivæ. Had some sleep during the night. Complains of being thirsty. Has taken considerable food at my earnest solicitation. 12 M., 4 P. M., and 10 P. M. I saw him, at which times his condition remained about the same as in the morning.

8th, 9 A. M. Pulse 84; respirations 11; inspirations still sighing; has had little sleep during the night, but has taken an abundance of nourishment. "The sensation of tightness and squeezing over the præcordial region" has returned during the night, but is not constant. Poultices were applied over the thorax. He is now perspiring freely. 12 M. Not so well as in the morning. Is now suffering with aërophobia; a slight current of air causes shuddering, the countenance at the same time expressing intense anxiety, mingled with dread. He has just suffered severely with a paroxysm caused by a current of air from the door which opens into the hall from his room. There is much muscular twitching, which extends over the whole body. This door was now fastened, and every possible care taken to avoid, in the future, all currents of air in the sick-room. Visitors entering the room from the street are admitted to the hall, this door closed behind them, then passed to the front parlor,

which is kept constantly well heated, and then the door opening into the front parlor from the hall is closed, and then the door opening into the sick-room is so guarded that it can only be opened sufficiently to admit the largest guest who was in the habit of entering, and an attendant is constantly ready, who closes the door as soon as the entrance is effected. The patient's thirst is very much increased, and he is more apprehensive. He is no longer satisfied with the presence of half a dozen friends in the room, but wishes the room crowded. He is unusually talkative. 5 P. M. Condition remains about the same as at noon. Ordered a dose of Rochelle salt. 10 P. M. Pulse and respiration unchanged since last visit. Aërophobia slightly increased.

9th, 9 A. M. Bowels moved freely during the night. A paroxysm came on at 1 A. M., and lasted until nearly 2 A. M. This paroxysm was apparently excited by finding himself in the room with no other attendant than his wife. He seemed greatly frightened when he awoke, looked wildly around the room, and called in frenzied tones for his brother and other attendants who had been with him until near midnight, but had left after seeing him sleeping. The strychnia was omitted from midnight until 11 o'clock this morning without the knowledge of the attending physicians. Patient imagines the medicine is injuring him. Pulse 92, and more feeble than at any previous examination; respirations 11; much muscular twitching, sensation of fulness of the stomach, gaseous eructations, and "tightness or squeezing" over the præcordial region. 1 P. M. Pulse 86, and stronger; respirations 11. It is now two hours since he took one-eighth ($\frac{1}{8}$) of a grain of strychnia. 5 P. M. Pulse 72; respirations 15, and less sighing; no muscular twitching. At 2 P. M. he took one-twelfth ($\frac{1}{12}$) gr. strychnia, and at this time (5 P. M.) he took the same quantity. He now asked me if I would allow him to drink water, and, as I answered in the affirmative, an attendant asked him if he would have some at that time. He refused, although he was complaining of great thirst. I was followed to the door, while in the act of leaving the house, by one of the principal attendants, who informed me that the patient had not taken a drop of cold water during the preceding twenty-four hours, and could not be persuaded to make the attempt, but that he had taken warm drinks freely. 10 P. M. No change.

10th, 9 A. M. Pulse 80; respirations 17. Passed a very restless night, with very little sleep. Does not take nourishment well. 1 P. M. Has had one paroxysm this morning. Pulse 100; respirations 15. Considerable muscular twitching; nervous and more apprehensive. 5 P. M. Has had another paroxysm this afternoon. Pulse 120, and all other symptoms proportionally intensified. 7 P. M. Has just recovered from another paroxysm; gaseous eructations are now very distressing. Has just vomited. 10 P. M. Evidently growing worse. Pulse more rapid; more nervous and apprehensive; more muscular twitchings, and greatly distressed with gaseous eructations. 11.30 P. M. At this time I was obliged to be away, but Dr. McLoughlin, who was called in on Tuesday, and who had been in attendance with me since, remained with the patient, and describes the paroxysm as follows, viz.: "The paroxysm consisted of clonic spasms of the respiratory muscles, each lasting one or two minutes, followed in quick succession by others, and each succeeding one increasing in duration and severity, without any complete intermissions. At the end of an hour the spasms had become so severe and the dyspnœa so great, that he could not speak above a low whisper, and even this whis-

pering was of short duration; from the commencement of the paroxysm the voice had become gradually lower and lower, so that finally he made his wishes known to his attendants by beckonings. During and after the paroxysm he was extremely sensitive to changes of temperature, the slightest current of air causing the paroxysm to recur. At his desire the temperature of the room was kept at 82° F. During the paroxysm he was constantly calling and beckoning for poultices, which were applied at the highest temperature consistent with the feelings of the patient, as only a slight increase of temperature was needed to produce a blister. He afterwards told us that he thought the hot poultices afforded him some slight relief. The face and manners of the patient during the paroxysm indicated the highest degree of anxiety and alarm, but he was apparently conscious, and at that moment seemed to keenly appreciate the peril of his situation. When able to speak, he called on me in anxious tones for help; begged me to do something to relieve him. At 1 o'clock the paroxysm began to remit, and had wholly ceased at half past one. He was frequently expectorating tenacious saliva. Respirations were gasping and irregular. The severity of this paroxysm satisfied me at the time that he could not possibly survive four more of equal severity."

The patient had been unusually talkative during his entire illness, but, as soon as he had recovered sufficiently from the exhaustion produced by the last paroxysms he talked incessantly, appeared unable to stop, and would not allow others to speak or in any way to interrupt him. He had made up his mind to die, and seemed resigned to his fate; but when I entered the room in company with Dr. McLoughlin for the purpose of injecting the woorara, he requested us to wait, and then proceeded to say adieu to his numerous friends assembled around his bed, some of whom he admonished of future danger, and at the same time urged them to a higher and better life. He spoke on this subject very rapidly and with much earnestness, although naturally a man of few words and not possessed of fluency or eloquence. Having finished his pathetic remarks, he turned to us and said: "Doctors, proceed to perform your duty."

11*th*. 2 A. M. Injected subcutaneously one-sixteenth ($\frac{1}{16}$) gr. woorara. During the previous twenty-four hours he had slept very little; twenty minutes after the injection he fell asleep, the sleep being disturbed and restless, occasionally starting up and then falling asleep again. 5 A. M. Being at this time in an adjacent room I heard the patient wrangling with his friends, having already thrown off the poultices and bedding, in opposition to their remonstrances and even resistance. When I entered the room he immediately recognized me; asked me where he was and what was the matter with him. I informed him that he was at home and that he was very ill. He replied "this is very strange! very strange! I can't understand it," and then asked "how long have I been sick?" and immediately following the question with the declaration "I am no longer sick; I have only a sore throat." He was now constantly putting his hand to his throat, hawking and making a great effort to clear the same, but apparently with little success, as he failed to expectorate any considerable quantity of sputa. We finally persuaded him to lie down in bed, and to permit the bedding to be again placed over him; and within a few minutes he was able to recall the past, and soon became perfectly rational. This delirium was of short duration, did not continue more than half an hour, and was the only attack of the kind from the commencement to the termination of the disease, and had been preceded immediately by retching

and vomiting. I now injected as before one-ninth ($\frac{1}{9}$) gr. woorara, after which he slept better and exhibited less nervousness. 8 A. M. Injected one-sixth ($\frac{1}{6}$) gr. woorara, which was followed by a quiet sleep. 10 A. M. Patient now quiet and rational; pulse 96; respirations 17; no sighing. Declares that he is feeling perfectly well; wholly indifferent to currents of air, in fact all unfavourable symptoms have disappeared. Thinking it better to continue the use of the woorara lest the symptoms should reappear, I requested Dr. McLoughlin to inject one-sixth ($\frac{1}{6}$) gr. at 11 o'clock, at which time I should be necessarily absent. The patient refused to allow the doctor to give the injection, but took a bottle of citrate of magnesia without the advice of his medical attendants. He has had no return of the symptoms of the disease from that day to this.

That this interesting case may be more thoroughly understood, I shall now review so much of the daily reports as may seem necessary to enable the reader to appreciate the value of the symptoms, and establish the true nature of the disease. In the above report symptoms are mentioned, but their duration is often left to conjecture or at least not definitely stated. The chill from which the patient was suffering when I first saw him, had disappeared previous to my second visit, and did not again appear. The retching and vomiting present on the first day, returned on the third and fourth days, and became so troublesome on the fifth day that the patient was unable to take any appreciable quantity of food, and less than half the quantity of brandy which he had taken during either of the two preceding days.

He also complained very much of the strychnia; said "it nauseated him," and owing to this condition only a small quantity was taken, and a still smaller quantity remained in his stomach, probably less than one-fourth ($\frac{1}{4}$) of a grain during the entire day, was retained, as he vomited occasionally immediately after taking this medicine. There was a gradual increase in the severity of these symptoms during the whole disease, and no cessation until after the woorara was administered. The congestion of the conjunctivæ and the turgescence of the vessels of the face, steadily diminished, and had entirely disappeared on the morning of the fourth day. The constrictions of the respiratory muscles were paroxysmal in character, confined entirely to this group, at least affecting only the larynx, trachea, and lungs, and are sufficiently described in the daily report. The dilatation of the pupils existed three days. The nervous excitability, apprehensiveness, dread of being left alone, and the sighing respiration, were present during the entire disease; although varying in intensity, apparently much increased by the clonic spasms of the muscles; but these all disappeared with the use of the woorara. The respirations varied greatly; at times being remarkably slow, but gradually increasing in rapidity towards the termination of the disease. The sharp lancinating pain in the left hand and arm was of short duration, probably lasting two or three hours. Pulse variable; always more rapid during and immediately after the spasm, and more irregular and feeble.

The aërophobia made its appearance on the third day of the illness—increased uniformly until the injection of woorara put an end to all further trouble.

The patient was not apparently affected by bright light, the light of any shining object, or by bathing the hands and face in water. The aërophobia alone indicated the excessive hyperæsthesia.

He complained slightly of thirst on the second day, which gradually

increased until the morning of the sixth day, and on the fifth day gave him much suffering. Soon after the beginning of the thirst he endured very much pain from a sensation of fulness, and great distress in the præcordial region, which were accompanied with gaseous eructations. The last-mentioned symptoms followed the same course as the third—especially the gaseous eructations, which became extremely troublesome on the fifth day.

Early in the disease he began to perspire freely—day after day it increased until finally the bed and bedding were thoroughly saturated with the perspiration, thus giving the patient the benefit of a continuous hot bath, but here again the cessation came when the woorara was injected.

The only aversion to fluids was manifested by the patient refusing to take cold water on the third day of his illness, and persistently thereafter until his recovery was established—although constantly complaining of thirst during this period, he only drank warm fluids in considerable quantities. I am not aware that water or other fluids were offered to him at any time during the existence of a spasm. I incline, in fact, to the opposite opinion.

The patient endeavoured to convince himself and friends during his illness, that he was not suffering with rabies; especially was this the case when free from pain and distress, and a few hours free from a paroxysm, but on the fifth day the paroxysms being frequent, the suffering severe and continuous, his countenance became greatly dejected, and he now apparently abandoned the only hope that had previously cheered him.

He had previously imagined that all his illness was caused by the medicines, and consequently blamed his medical attendants, but during this day his confidence in them seemed to be fully restored, and he begged them frequently for relief, and desired them constantly at his bedside. The most singular part of his conduct is, that so soon as he found himself completely relieved, and again placed on the highway to health, his old fancy returned, and he now *pretends* to believe that the only cause of his suffering was due entirely to the medicine.

The important question to determine in connection with this case now, is entirely one of diagnosis. Do the facts and symptoms warrant the conclusion that this patient suffered with genuine rabies canina? This question raises another which has a prior claim on us at this time. How is the diagnosis of rabies made? Is there any pathognomonic symptom of this disease? The last question *must certainly be answered in the negative;* although the vulgar belief is, that the inability to drink water, or, at least, great aversion to it, constitutes *the* principal phenomenon, and even among physicians it is not unusual to speak of this symptom as the characteristic one of the disease.

Inability to drink water is, however, found to exist in many other diseases, particularly hysteria, spurious hydrophobia, and many morbid conditions of the throat. Thus Prof. Elliotson says:—

"People will take an antipathy to all liquids; and sometimes, in common sore throat, there is such a spasmodic disposition in the throat, that the attempt to swallow excites great irritation; and the recollection of it excites fear at the very sight of water, while the attempt to drink it is terrific. On the other hand, the fear of water, the fear of swallowing, is not universal in hydro-

phobia. Persons sometimes swallow very well in hydrophobia, and put their hands into cold water; dogs will swim across a stream, and some persons, it is said, drink quite well to the very last. I believe I have seen this occur myself."[1]

Prof. Samuel Cooper says :—

"The question has sometimes been entertained, whether rabies can ever exist quite unattended throughout its course with a dread of liquids? The possibility of such a case was believed by Mead and others;"[2] and the same author adds: "The dread of swallowing liquids, though the most singular symptom of the disease, constitutes but a small part of it."[3]

A. Poland, Esq., says :—

"The dread of water, the almost characteristic symptom in man, is not always present, as may be proved in recorded cases. On the other hand, this symptom may be met with in other diseases: thus in hysteria we may have what is called hysterical hydrophobia, where the sight of water induces a paroxysm of hysteria, but this only lasts a short time; in inflammatory affections about the throat, larynx, and neck, and in certain diseases of the brain, there may be a difficulty and dread in swallowing fluids, which is called symptomatic hydrophobia; in hypochondriasis and melancholia there is sometimes painful and convulsive deglutition."[4]

Prof. Romberg says :—

"A negative, but no less important symptom, is the absence of fear of water or hydrophobia."[5]

Prof. Abraham Colles, speaking on this subject, says :—

"You see, therefore, that the popular notion of the horror of water forming the great diagnostic of hydrophobia is incorrect; we have the same horror of drinking in some cases of hysteria, in some affections of the brain, in tetanus, etc., while, in some cases of hydrophobia, they drink with little reluctance or difficulty."[6]

Prof. Frank H. Hamilton, speaking on the differential diagnosis between this disease and tetanus, hysteria, etc., says :—

"It is not, however, so much the presence or absence of any single phenomenon that determines the diagnosis, as the complete history and concurrence of symptoms. Nowhere else, it can safely be affirmed, is the same or even a similar group of morbid phenomena presented."[7]

Having thus cited a few authorities for the purpose of showing the incorrectness of the popular idea that the dread of water is the pathognomonic symptom of rabies, I shall now call attention to a few well-authenticated cases—terminating fatally without the presence of this symptom. The case of Robert Hodson, who was bitten by a rabid dog, which died soon after inflicting the wound, is reported by Samuel Cock, who says :—

"He had no dread of liquids, nor did he ever refuse drinking what was offered to him, when he was sensible enough to understand what was meant by the offer. . . . . He was now put into a tub of warm water, up to the chin,

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[1] The Principles and Practice of Medicine, 2d edition, London, p. 711.

[2] Cooper's Surg. Dict., 2d edition, London, p. 790.

[3] Ibid., p. 791.

[4] Holmes's System of Surgery, vol. i. p. 691.

[5] Diseases of Nervous System, vol. ii. p. 147.

[6] Lectures on Surgery, Phila. 1845, p. 48.

[7] Principles and Practice of Surgery, p. 131.

which did not the least discompose him, and when he got to bed again, he said he had no pain anywhere."[1]

Mr. Holmes Coote, writing to *The Times* in regard to hydrophobia, says, that "in the course of thirty-five years' observation at St. Bartholomew's," . . . he "saw only two cases of it; and one of these so far belied the vulgar pathology as to the patient's repugnance to water, that the sucking of ice gave him the greatest relief."[2]

Another symptom of rabies—the clonic spasm—is of sufficient importance to demand our brief attention.

The authorities who have written on the subject of rabies, do not fully agree in regard to the muscles principally affected by the spasms in this disease; probably for the reason that it seldom happens that the same group are equally affected in different cases, although there are very few, if any, cases in which the muscles of respiration are not largely involved.

Dr. J. Lewis Smith, in an "Analysis of One Hundred and Thirty-one Cases of Hydrophobia," in speaking of the paroxysm, says:—

"The proximate cause of the attacks was a spasm of certain muscles; though, from the nature of the disease, it was difficult to tell exactly which or how many. The sufferer often referred to the throat as the seat of his distress, and the muscles in this region were, sometimes, visibly in a state of spasmodic action. Occasionally a constriction of the chest was complained of, as in Nos. 18, 42, and 44; or, across the abdomen, as in Nos. 45 and 50, leading to the belief that the thoracic and abdominal muscles were involved."[3]

Prof. Thomas Watson says:—

"There may be a spasm of the glottis, but I doubt it."[4]

Mr. Robert Druitt says:—

"Hydrophobia is a disease brought on by inoculation with the saliva of a rabid animal, and characterized by intermitting spasms of the muscles of respiration, together with a peculiar irritability of the body and disturbance of the mind."[5]

Having already given some attention to certain symptoms, let us now proceed to examine the question of diagnosis.

The correct diagnosis of a disease can only be made by giving to every symptom and group of symptoms their proper place and value. This may be aptly illustrated by supposing ourselves in possession of numerous blocks of wood, or other material, of various patterns and dimensions. The blocks being of various patterns and dimensions may represent not only symptoms, but also the value of the same. Let us now suppose ourselves in possession of a certain number of images—each image representing a particular disease, and also in possession of the knowledge that only a single fac-simile can be possibly made with the blocks in our possession. The effort to make a diagnosis may now begin; the symp-

[1] Medical Histories, edited by Ferriar, 1st Amer. ed., p. 313–4.
[2] Lancet, Dec. 1868, p. 754.
[3] N. Y. Journ. Med., vol. xvi., No. 1, p. 52.
[4] Pract. of Physic, edited by Condie, p. 405. New Amer. edit., Phila. 1858.
[5] Modern Surgery, edited by Sargent, p. 164.

toms are arranged in groups—each examined critically to ascertain that each symptom fits perfectly in its place, and should this be the case, then we have succeeded in demonstrating one stage of the disease. The same care should now be taken in putting together the different groups, and if the groups are found to fit together perfectly, then the image will be perfect, and the question of disease settled. In accordance with the suggested system, I have carefully examined the symptoms of this case, but have failed to produce anything like a satisfactory image of tetanus, hysteria, pseudo-hydrophobia or phrenitis. Had the case terminated fatally, probably no physician could have been found who would have questioned the correctness of the diagnosis rabies canina, but notwithstanding the fact that the patient is now alive, I am still firmly convinced that the diagnosis was correct.

In reviewing the development of this case, which has terminated thus favourably, so unexpectedly to myself and the medical gentlemen who have seen the case with me, I shall detail the management from the beginning to the end of the disease, and also mention some of the reasons for the selection of the remedies used. The strychnia was intended to be used regularly in the prescribed doses throughout the entire day, except while the patient was sleeping. I am, however, satisfied that it was not at all times taken with perfect regularity. The entire quantity of this drug used during the five days' illness of the patient was about two and one-fourth ($2\frac{1}{4}$) grs. It was our intention when we commenced the use of the strychnia to continue it in gradually increasing doses until its specific action was produced, but the patient did not take the medicine with that degree of method which insures confidence and enables a physician to push the use of such powerful remedies until the desired effect has been attained. I am now satisfied that the plan of administration adopted by Dr. Fell in the treatment of tetanus with strychnia is highly advantageous, and should be followed in all cases of hydrophobia where this drug is used.

The selection of this remedy for this case was based on the following reasons: 1. Rabies and tetanus belong to the same class of diseases, and the medicines used advantageously in the latter ought, therefore, to be beneficial in the former. 2. If we can rely on the published reports of cases of tetanus cured with it, then we are fully assured that no remedy has ever been previously used with anything like the same success. Finally, the treatment of rabies with the remedies heretofore used has not been sufficiently successful to justify a very strict adherence to any particular drug or method. Prof. Alfred Stillé says:—

"Even in *tetanus* its power has been unequivocally displayed. In 1847, Dr. Fell, of New York, published seven cases of tetanus, six of which were certainly of the traumatic variety, and which all recovered under its use. His plan of administering it was to give one-eighth or one-tenth of a grain, and in two hours one-sixteenth of a grain, then reducing the dose still further, and only to the extent of producing specific signs of its influence after each one. Dr. Kollock

also relates a case of traumatic tetanus occurring in a negro girl, which was cured by strychnia, given in doses of one-twelfth of a grain every two hours. Another cure of the same disease, by the same means, is related by Dr. L. Bartlett."[1]

The injections of woorara were given by myself, and I am, therefore, able to speak positively in the daily report. The specimen was procured through the kind assistance of Prof. Austin Flint, and was in a solid state. I requested Mr. Phillips, of this city, to prepare it for use, and have received from him the following note:—

Dr. B. A. Watson, Dear Sir: The solution of woorara for hypodermic injection was prepared as follows: one grain of woorara was first reduced to a fine powder, and to it was added with constant stirring one fluidrachm of distilled water. Alcohol of 95 per cent. was now added, drop by drop, till a nearly perfect solution was obtained. Sufficient diluted alcohol of the U. S. P. was then added to make the solution measure two fluidrachms. Prepared in this way, twelve minims of the solution should represent one-tenth of a grain of the drug. The slight turbidity of the preparation was probably owing to extraneous matter which existed as an impurity. Yours, truly, Geo. W. C. Phillips, 124 Newark Ave.

The woorara was finally used because of its well-known physiological action, and also for the reason that the strychnia, which at first seemed to be highly beneficial to the patient—and I am fully satisfied that it did delay the progress which the disease would otherwise have made—could no longer be given on account of the vomiting.

The conviction that I have just expressed in regard to the action of the strychnia is based on the fact that the patient after each paroxysm suffered with nervous twitchings, and at the same time the pulse was observed to be much more frequent and feeble than before the spasm. In this condition, it was invariably the case that, if the strychnia was taken immediately after the spasm, the twitchings rapidly disappeared, and the rapid pulse became slower and fuller; but when the remedy was omitted the nervous and depressed condition continued much longer. Beside the medicines already mentioned, the patient drank freely, during his entire illness, of a decoction of Scutellariæ laterifloræ.

He commenced the use of brandy punch on the second day of the disease; and on the third and fourth days, used each day one quart without showing any symptoms of intoxication, but during the fifth day he could not be prevailed on to take even one-half this quantity. During the first part of the illness he ate and slept well; but during the latter part he took less food and had much less sleep.

The profuse diaphoresis, which has been previously mentioned, I think may have had a beneficial effect, and I find on examination an article written forty-six years ago, entitled, "Proposal to employ Heated Air in Hydrophobia," in which appears the following recommendation:—

"It is my wish to propose, through you, to the public, that future cases of this disease may be submitted to the full influence of highly heated air, so as

[1] Therap. and Mat. Med., 4th edit., vol. ii. p 187.

to produce from the skin and lungs a copious exhalation. This treatment affords to my mind a hope of success, because in all the more virulent and manifestly contagious diseases, as plague, smallpox, measles, and scarlatina, there is an effort to throw off the poison by cuticular action; and, in the plague, those who get bubo and cuticular disease early do for the most part recover, and in some instances *spontaneous sweating has appeared to carry off the disease.*"[1]

I will only say, in concluding the report of this case, that I am now fully satisfied that the diagnosis of the disease made during the illness of the patient is correct, even without the aid of a post-mortem examination; and were I to assume the responsibility of managing a case of rabies to-day, I should not materially change the treatment from that followed in this case.

[Since the preparation of the above report, a case of "Rabies Successfully Treated by Woorara," by Offenberg, of Berlin, is noted in *The Medical Record*, March 18, 1876.]

I have also received the following letter from Prof. Flint, and with his permission to publish the same :—

New York, April 26, 1876. Dear Doctor: I saw your patient, McC., with you in consultation, Feb. 6, 1876. I received from you an account of the case, as you have detailed it in your report up to that date, and also the statement that a servant maid in the family had died with unmistakable rabies. The symptoms which the patient presented at my visit, as I recall them, were as follows: The face was flushed, and the eyes somewhat injected. His expression denoted excitement and anxiety. He was restless; his busy movements were somewhat like those in delirium tremens. Brief paroxysms of rapid breathing occurred at short intervals, and there was frequent sighing. When I asked him how he felt, he answered, "I am awfully well." He showed no disposition to enter into any account of his feelings. The name hydrophobia was not spoken in his presence, nor was any reference made to his having been bitten by a dog. I requested that he should drink some water, which he did without any reluctance or difficulty.

In my consultation with you, I expressed the opinion that, although there were not then sufficient data for the diagnosis of rabies, taking into view the facts relating to the dog, the bite, and the case of the servant maid, the present symptoms foreshadowed that disease. I thought that within 24 or 48 hours the development of the characteristic features of the disease would render the diagnosis positive. I expressed this opinion, at your request, to some of the friends of the patient. The patient himself did not ask for my opinion.

I concurred with you in the treatment which you were pursuing, and in the propriety of employing the woorara when the disease became fully declared. At your request I procured and sent to you some woorara, which was obligingly furnished by Dr. John J. Mason.

My subsequent knowledge of the case is derived from your report. It is to be regretted that the case has given rise to sensational articles by newspaper reporters; but this, of course, should not stand in the way of a dispassionate consideration of the question whether the disease was, or was not, rabies. The recovery of the patient and the employment of woorara, render this question one of much importance.

The symptoms at, and prior to, my visit, are consistent with the supposition that the patient was in the primary stage of rabies; and, as it seems to me, we were fully justified in having the opinion which we both held at that time. Under the same circumstances I should again form the same opinion. The subsequent history shows the absence of the symptom which is generally a

[1] Journ. For. Med., vol. ii. pp. 262-3.

marked feature, and from which the term hydrophobia derives its significance, namely, laryngeal spasm excited by the effort to drink water, and consequent apprehension in making this effort. But I suppose it to be undoubtedly true that this symptom is not invariably present in cases of rabies. While, therefore, hydrophobic manifestations would have been valuable in a diagnostic point of view, their absence is not proof that the disease was not rabies.

Lyssaphobia may certainly be excluded. The patient appeared to be resolute in the belief that he had no serious affection. There is no ground to suppose that the phenomena were hysterical.

The character of the convulsive paroxysms is of great importance with reference to the diagnosis. The point of inquiry here is, were these paroxysms due to the strychnia? From your description they were not of the character which strychnia would produce, and the doses of strychnia were not sufficient to produce convulsive movements with disturbance of respiration.

The fact of recovery naturally excites scepticism in respect of the diagnosis of rabies. I am conscious of this in my own mind. Excluding, however, lyssaphobia, hysteria, and the toxical effects of strychnia, it is difficult to say what the disease was, if it were not rabies. To say the least, the supposition that the disease was due to the virus of rabies is not without the range of probability; and the case would, therefore, lead to the employment of the woorara in cases which admit of no doubt as to the diagnosis. Whether the disease was or was not rabies, the effect of the woorara appeared to be useful; and as a contribution to our at present limited knowledge of the therapeutical use of this remedy, the report of your case is interesting and valuable. It is hardly necessary to add, that should the woorara be found to have a curative power in rabies, you will have conferred a great benefit on medicine and on humanity by venturing upon its use, and by the publication of your report. Very truly yours, Austin Flint.

ART. XIII.—*Case of Hydrophobia; Death. Early History of the Case.* By T. J. M'LOUGHLIN, M.D., of Jersey City, N. J.

Subsequent History, with Remarks. By J. E. CULVER, M.D., Physician to St. Francis Hospital, Jersey City.

ON Sunday morning, January 30, 1876, I was called to attend Lizzie M., a servant living in the family of Mr. James McC., of Jersey City. I noticed by her manner and appearance that she was quite nervous, and in an anxious frame of mind. In answer to inquiries made in regard to her previous condition, I was informed that she had been unwell for several days, but that since the day before she had been growing much worse. During this time she was known to have taken very little nourishment, but owing to the fact of her being regarded as unwell, this circumstance attracted little attention.

On the evening of Saturday, Mrs. McC., prompted by sympathy to do something to assist the girl, prepared some tea, which she wished her to take. When it was brought she showed some disinclination to drink. Being prevailed on, however, in the hope of benefiting her, she took a mouthful, swallowed it with an effort, and refused to drink any more, at the same time complaining that in the act of swallowing she had "a choking sensation in the throat," and that "it caused an oppression in her breathing." In addition I was told that she was troubled with frequent gaseous eructations, and, while I was examining her, she twice or thrice

belched up a quantity of wind, and declared that doing so afforded her relief. It was noticed also that, contrary to her usual cheerful disposition, she was at intervals quite melancholy, depressed in mind, and repeatedly sighed. The last was a constant symptom, and in the further progress of her illness was more marked. When questioned in regard to herself, she complained of pain and soreness in the portion of the præcordial region correspondiug to the attachment of the diaphragm, and of an inability to get her breath, but she did not attach great importance to these symptoms. In an agitated manner, and with assumed cheerfulness, she frequently declared that her ailment was merely the result of a cold, that there was nothing the matter only that she could not get her breath, and that she believed there was something the matter with her lungs. Though nothing in her case pointed to disease of the lungs, nor to render examination of these organs necessary, I proceeded to inform myself of their condition, and took hold of her hand to assist her in sitting up. She hesitated a few seconds, then grasped my hand, and, making a forced effort, she raised herself by springing to a sitting posture. Immediately after she threw up her hands, and, with eyes widely opened and manner agitated, drew a short, sighing, interrupted inspiration. This passed quickly away, and with the exception of some slight excitement and uneasiness of manner, and a constant desire to impress those about her with the idea that there was nothing of importance the matter, her condition in the mean time betrayed no marked signs of a dangerous disease. I then made a careful examination of the lungs, but, as anticipated, the result presented no evidence whatever of any abnormal state of these organs. The percussion was normal, and the breathing vesicular in quality, though slightly weakened, everywhere throughout both lungs. There was nothing peculiar about her pulse then ; it was regular, perhaps a little diminished in force, and beat ninety per minute. Her throat, being inspected, appeared slightly congested. There was nothing remarkable about her eyes—no noticeable redness—but the general expression of the face was somewhat apprehensive, and a little excited.

To test the report of her difficulty in drinking fluid, and observe the symptoms attendant on the attempt of doing so, I directed a glass of water to be brought. She said, "Oh no! I don't wish to take any now," and by her uneasiness of manner also showed some repugnance to the liquid. The water being brought, I offered her the glass, which she took with hesitation, paused a moment, and shuddered slightly, her face betraying some anxiety. She was about to set down the glass, when I urged her to drink. Then summoning her courage by making a strong effort of the will, she, with some degree of trepidation, brought the goblet to her mouth, took a mouthful, and quickly gulped it down. Immediately her thorax and shoulders were elevated, the arms flexed and raised in attitude to allow the greatest chest capacity, all the respiratory muscles became tense, the muscles of the neck also rigid, the head turned slightly to one side, thrown back, and fixed, while at the same time the eyes were widely opened, and her face presented a picture expressive of dread and agitation. The appearance of the paroxysm strongly resembled that produced by the sudden and unexpected application of a cold shower bath. For a duration of a few seconds her breathing was interrupted, after which the symptoms passed off, leaving her a little agitated. When she recovered her breath she said in a protesting manner, "Oh ! there is nothing the matter with me, only drinking the water chokes me a little, and I can't get my breath, that's all."

At that visit I had no knowledge that she had been bitten by a dog or any animal, and, knowing the apprehensive disposition of the family, I avoided making inquiries on that head then, as I did not wish to have alarm created, and, it being my first visit, I wished to wait a little, to be more certain of the case, and be enabled to make a positive assertion of its character. I prescribed for her an anti-spasmodic mixture, gave some directions, and left.

During the night the male member of the family called at my office, stating that he was alarmed by the way she was behaving, that she was constantly tossing herself about in bed, and sometimes wanted to get out of it, that she was afraid to be left alone, and at times excited, and had a slight wandering delirium, so that they were obliged to stay up to care for her. I accompanied him to his house, and found her excited and restless as he described, her face wearing an expression as if, from the oppression of her chest, she dreaded being suffocated. She was easily quieted, however, by talking kindly to her, and frequently urging her to control herself and be tranquil, to do which when I was present she made an effort. Having allayed their fears as to any immediate danger, and administered a hypodermic injection of ℞x of Magendie's solution of morphia, I left for the night, my idea of the character of the case being still more confirmed by what I then learned.

Believing that in the progress of her case she might become troublesome, require to be controlled, and that the family would not be able to take care of her, I recommended her to be sent to a hospital next morning. When I arrived at nine o'clock A. M., I was informed that she was growing more restless and apprehensive, and had occasional spasms of the chest, which appeared to return more frequently and with increased severity. She had refused all liquids, and neglected even taking her medicine on account of the distress the effort of swallowing it brought on. As I entered the room she was thrown into a slight spasm, caused by the current produced by opening the door. Such attacks, I was told, occurred whenever, from any reason, she was surprised or disturbed, or the door was opened.

A constant accumulation of mucus in the throat, and an inability to get rid of it thoroughly, was a symptom that gave her much annoyance. She declared that though she made repeated efforts to expectorate it, yet some remained sticking to her throat. Success in raising it gave her much satisfaction, hoping thereby to obtain relief.

Her appearance this morning betrayed more anxiety, restlessness, and apprehension than on the previous day; but she was at no time boisterous or irritable. She could control herself in a measure, when quietly talked to, and, while in the house, always obeyed when told to do anything. I questioned her closely then, to learn if she had been bitten by a dog, cat, or other animal, but she persistently denied that she ever had, as did likewise the family. As she did not admit having been bitten, I determined to try once more if her fear of water was real. For this purpose Mrs. McC. and myself proceeded to assist her in rising up. As on the day before, she hesitated before attempting to rise; then, with a laboured effort, she sprang to a sitting posture. At the same time she spasmodically grasped our arms with considerable, almost painful force, and had a strong catch in her breathing, which lasted a few seconds, and required much effort to overcome. On ordering the water she immediately became anxious and troubled, and, with an expression of dread, begged

that we should not ask her to drink. Being pressed to overcome her aversion, and told that perhaps her fear was only imaginary, she consented to try, and the glass of water was brought. She looked at it, paused, then shuddered, turned her head away and said, "I can't; don't ask me." Mrs. McC. still further persuaded her, and she said, "I don't want to drink out of the glass; I'll drink some with the spoon." She then filled a tablespoon, and with hesitation carried it to her mouth, threw the water in, and made an attempt to swallow. Instantly her shoulders and thorax were elevated, breathing interrupted, inspiration catching, and she had a paroxysm similar to the one already described, only much more severe in character. I am of the opinion that the glottis was involved in this spasm. Interrogating her and the family yet more, I did not ascertain that she had received any injury. She had no trismus, no tension of the spinal muscles, and there were other marked distinctions between her symptoms and those of tetanus. She had no indication pointing to any disease of the brain or cervical vertebræ; was not subject to hysteria, nor would a theory of hysteria, even supposing her denial of having been bitten to be true, explain her symptoms. Moreover, it is well known that, contrary to the facts of the case, patients with rabies often deny having been bitten, and persist in such denial. There was no evidence of disease of the larnyx or œsophagus, and the non-existence of any was subsequently proved (*vide* autopsy).

At a subsequent visit that morning, I noticed that she had marked aërophobia. Every current of air that blew on her brought on a paroxysm more or less severe. Even sudden motion in the room sufficed to induce a slight attack, and a mere touch with the hand was often all that was necessary to throw her into a transient spasm. These spasms came on at intervals, being induced by very trivial causes, and even without any appreciable one, and continued to increase very gradually in severity up to the time she was removed to the hospital. It had been intended that she should be sent to the hospital in the morning, but owing to delay in communicating with her relatives, their tardiness, and other obstacles thrown in the way, she did not arrive there till late in the afternoon.

I had no further connection with the case, and the remainder of the history will be furnished by my friend, Dr. J. E Culver, who was on duty at the hospital on her arrival.

Subsequent History, with Remarks. By J. E. Culver, M.D., Physician to St. Francis' Hospital, Jersey City.

Lizzie M., aged 18 years, was admitted into St. Francis Hospital, January 31, 1876, just as my term of service was expiring and I was about to leave the building. Waiting in the apothecary's room to enter her name on the Hospital Record, a window-shutter was opened to admit more light, whereupon she started suddenly, with a look of terror, and in a twinkling nearly all the voluntary muscles of the body participated in convulsive movements. A start, an instant holding of the breath, and a convulsion, followed the ringing of the door-bell. Several times currents of air blowing upon the face caused convulsions. As a convulsion subsided, one of the sisters approached the agitated patient, and with words of kindness, sympathy, and encouragement, besought her to dismiss her fears, and try to control herself. While speaking, the sister caressingly passed her arm around the girl's neck, and lightly patted her cheek to soothe and assure her. Like magic, at the first touch of her hand the

paroxysm recurred, although she strove bravely to resist it with all her might.

I observed that she swallowed saliva after each paroxysm, and that deglutition was normally performed, and did not excite a renewal of the paroxysm. It was evident that the spasms did not extend to the involuntary muscles of the œsophagus. Her senses were wonderfully acute, and this hyperæsthesia coexisted with an intense motor hyperæsthesia, such that impressions ordinarily inappreciable and unnoticed now called forth quick, and various, and motley, and uncontrollable struggles. Even in the intervals of the paroxysms she was morbidly unquiet, and her actions were ill-coördinated, hurried, and jerky. Keenly vigilant, anxiety and fatigue were legibly depicted in her countenance. She stated that she had not taken food or drink for more than 48 hours, and she was hungry and thirsty. By dint of extraordinary effort she could carry a glass of milk to her mouth steadily enough, but before it touched her lips the spasms always supervened and defeated her volitions. There were frequent muscle-tremblings, and sighings, and eructations. Her pulse was 118, regular; temperature estimated normal; respirations hurried, restricted in scope, and irregular, and even became arrested, confused, catching, or gasping, during the paroxysms. There was cyanosis enough to make apparent the venosity of the blood. The greatest force and duration of the spasms were expended on the respiratory muscles; and oftentimes those of expiration and inspiration were both at once rigid in a state of violent antagonism, baffling the vain struggles of the conscious girl for breath. From first to last the involuntary contractions sometimes affected more one group of muscles, and sometimes another, but in every paroxysm the respiratory muscles most of all.

The appearance of the patient indicated previous good health, intelligence, a gentle disposition, and easy manners. To my questions concerning her present illness, she gave chiefly negative replies. Especially she declared, that in all her life she had never been bitten by a dog nor by any other animal. She or her aunt, who came with her, volunteered to account for her sickness as having been brought on by sleeping in an atmosphere foul with gases which escaped from a coal-burning stove having a bad flue-draught. My friend, Dr. T. J. McLoughlin, who was present with me in the hospital, and by whose advice the patient applied for admission, kindly gave me the early history of the case as already related.

I could learn nothing concerning the etiology of the disease. Her symptoms corresponded accurately to the only case of hydrophobia which I had ever seen before; but, wanting proof of the dog bite, I concluded to stand non-committal, and (partly at the suggestion of Dr. McLoughlin) to write down the diagnosis *hysteria simulating hydrophobia*, with the understanding that, should the dog be discovered, the first two words should be erased. The conviction that the patient was soon to die of hydrophobia deeply impressed us however, even while we were determined to withhold a decision and await the light of further developments. For we could detect no other disease, whether local or affecting the general system, by the closest scrutiny of all the phenomena observed.

She could bear the use of the tongue-depressor while we inspected the fauces, without a spasm being provoked. We therefore suspected that the glottis or epiglottis was a focus of hyperæsthesia, a starting point of the convulsions which defeated deglutition, and immediately put this idea to

the crucial test by applying thoroughly to these parts a strong solution of silver nitrate. As soon as the strangling caused by the caustic had subsided, she took a goblet of milk in her own hand and drank it all. She promptly answered affirmatively when asked if she would have more milk, and drank a second gobletful, and then part of another. This was done not without repeated efforts, interrupted by waiting to get her breath, and once by a convulsion. She was ordered a tumblerful of milk every hour while awake; also, the following prescription, namely: R. Tr. valer. ammon. ℥j; hyoscyami, ℥ij; assafœtidæ, ℥vj.—M. *Sig.—A teaspoonful every two hours in milk.* This might relieve hysteria—it could do no harm in hydrophobia so far advanced, for nothing known could at this stage avert a fatal termination. It might assist to extricate us from the ambiguous diagnosis.

This done, I left the hospital.

For the further history of the case I am chiefly indebted to the kindness of Dr. T. J. McLoughlin, who obtained the particulars from the sister in charge.

The patient was immediately put to bed in the large female ward. She remained very restless the whole evening, and, indeed, all night. There were continual sighings, and convulsions, and eructations of gases, but no sleep. She tossed about in bed so that it required an attendant to keep her from falling out. She protruded her tongue frequently as if to raise sputa, and vomited occasionally. She could not be prevailed on to take any drink whatever, except her medicine. She called repeatedly on those about her to close the door and stop draughts of air, because they took away her breath. Oftentimes she was delirious, calling aloud the names of absent relatives and others, and conversing with them. She disturbed the other patients, and had to be removed to a private room early on Tuesday morning. She had walked to the ward last evening, but now she could not stand; her legs seemed paralyzed, and dragged along the floor as she was carried. Ever and anon she complained that she could not breathe, tossed to and fro and threw herself about, seized hold of the bedstead, begged to be slapped and rubbed between the shoulders, and for the space of three hours suffered almost continual spasms, with very brief intermissions. She could now no longer be kept in bed, and her mattress was put on the floor. After severe paroxysms she frequently raised mouthfuls of foam, with some apparent relief. About 11 o'clock A. M. she became a little quieter, and continued so until 3 o'clock P. M., at which hour she took a good drink of wine. She had to-day previously swallowed nothing—neither food nor drink—except one teaspoonful of her medicine.

Soon afterwards I saw her again a moment in company with Dr. J. F. Finn, Visiting Physician to St. Francis Hospital. The surface of her body was cool and cyanotic. Pulse irregular, intermittent, and rapid, but indistinct at the wrist. A slow and feeble circulation. Respirations sighing, dyspnœic, and often interrupted by the spasms. Breath cool. Had vomited and had involuntary discharges. Convulsions continue. Semiconscious at times. Moribund. At 6½ o'clock P. M. she still raved incessantly, at times in a loud voice, and fancied that a girl standing by was throwing flour in her face. She leaned on her hands for support when breathing. A powder was administered to relax the spasms. Vomited. Convulsions continue. About 8 o'clock P. M. she extended her arms in jerky, rigid spasms, threw back her head, and died immediately.

It has since come to light that she had been bitten on her legs repeatedly by a dog presumably rabid, as stated in the previous case, see p. 80, but she had been enjoined not to mention this; and in the face of death she dared not divulge the secret even to save her own life, but preferred to utter a deliberate falsehood and take the risks.

The *post-mortem* examination was made by Drs. J. F. Finn, B. A. Watson, and myself, Wednesday, February 2d, at 11 o'clock A. M. The external appearances of the cadaver were those of one dying in full health. A shade of cyanosis still lingered, and there were two or three ecchymoses from bruises received in her struggles. The gross appearances of the brain and its membranes, the cerebellum, and the medulla oblongata and spinalis were normal. Sections of the medulla placed under the microscope revealed no disease-changes of structure. All the organs of the thoracic, abdominal, and pelvic cavity were examined, and the only pathological conditions found were, namely:—

1. A single minute patch of necrotic tissue was seen on the serous surface of the duodenum.

2. The coats of the intestines were injected pretty extensively, and presented pinkish striæ.

3. The arteries were empty, the veins everywhere were comparatively full, but not much engorged. The blood, partly in coagula, was black. Colour of muscles darkish.

The diagnosis of hydrophobia is difficult, and even its existence has from time to time been denied. Medical scientists have recognized and studied it in every age since the great medical school at Alexandria was established; but still it challenges investigation, for to-day it has no pathognomonic symptoms, no characteristic morbid anatomy, and no successful treatment.

Abstinence from food and drink is one of the earliest symptoms of hydrophobia noticed in man, and undoubtedly it obtains to some degree for a few days before it is discovered. Disordered digestion attends every case of this disease in man and in animals. In Lizzie M.'s case there were constant eructations from first to last. The gases belched forth could have their source in nothing else than septic decomposition of the contents of the alimentary canal. Putrefaction of albuminoid compounds always evolves hydrogen carbide, sulphide, and phosphide, irritant poisons—which at first produce a burning sensation in the stomach and œsophagus, but ultimately deeper irritations, striations, discoloured patches, and erosions of the mucous membranes. Such lesions of the alimentary canal, especially of the small intestines, are among the most constant found in bodies dead of hydrophobia: they may vary in extent and, intensity according to the quantity and quality of the matters contained in the intestines and the rapidity of decomposition. Perhaps we could avert these sufferings and dangers by a very early unloading of the bowels. One or more doses of castor oil, and enemata containing some safe antiseptic, would probably effect the object. The patient could then be nourished with liberal draughts of lactic-acid-wine-whey—adding to each ounce of the wine used in making it ℥ss to ℈ij of lactic acid. Lactic acid is an efficient antiseptic, and lactates are always present in healthy blood.

The hyperæsthesia, motor and sensorial, and the convulsions, were certainly not of centric origin in Lizzie M., any more than are the death-struggles of animals bleeding from severed jugulars. They were the con-

comitants of a failing circulation, imperfect aeration of the blood, a lack of equable innervation, a calorification, and evaporation ill-balanced. The temperature was probably reduced. The theory of a peripheral origin of both the hyperæsthesia and the convulsions may appear plausible to one who concedes due importance in the causation of involuntary contractions of voluntary muscles to the erethism of irritability which comes of incessant burning pain in the œsophagus, stomach, and intestines, the stress of impending suffocation and want of arterialization of the blood, the inability to satisfy a famishing hunger and thirst, and the racking pain which attends perpetual overwork and extreme exhaustion, without the possibility of a moment of rest—tortures, mental and bodily, which always augment until the conscious sufferer is thereby put to death. The convulsions were clonic. The final outstretching of the arms appeared tetanoid, as did also at times the contractions of the chest-muscles. But the spasms did not involve the involuntary muscles. The heart was not found in preternatural systole after death, neither was there any such contraction of the small intestines as occurs in tetanus and in some cases of tubercular meningitis.

The comfort of the patient demands occlusion of light by blindfolding or otherwise, all annoyances by touch or sound should be avoided; the temperature of the room should be uniform, and nearly that of the body; the atmosphere should be highly charged with moisture to retard evaporation.

The comparative emptiness of the bloodvessels, and the venosity and inspissation of the blood seen after death, are but the inevitable consequences of the early refusal of liquids, and the subsequent inability to swallow them; besides the unremitting muscular exertions accelerate evaporation, both pulmonary and cutaneous. Herein lies imminent danger to life, which can only be met promptly by injecting into the veins, at suitable intervals of time, and in quantities sufficient to refill the bloodvessels, water at 100° Fahrenheit—perhaps holding in solution, ammonia, chloride of sodium, and soda lactate or carbonate, slightly in excess of the proportions in which they are contained in healthy blood. With a hint from the experience of Magendie we must close. This physiologist, knowing the influence of largely substituting water for blood in the circulating system, tried the experiment in a mad dog which was in a furious state, and which instantly became tranquil, and so continued for five hours. Again, he injected one pint of water at 100° Fah. into the vein of a man's arm; directly the patient, from being highly rabid, became tranquil, the pulse fell from 150 to 80 in a minute, the convulsive motions ceased, he drank water without difficulty, and continued to improve till the fifth day. In another case, death followed as in this; but at the moment of the experiment, there was a great and sudden change for the better. The patient lived eight days after the injection, and died, possibly from another complaint.

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ART. XIV.—*Report on Eighty Cases of Chorea.* By GEORGE S. GERHARD, M.D., Physician to the Orthopædic Hospital and Infirmary for Nervous Diseases, and Assistant Physician to the Children's Hospital, Philadelphia.

IN the *Philadelphia Medical Times* of January 3, 1874, I published a digest of thirty cases of chorea, which was of interest not only on account of its having been the first of the kind ever made on this side of the Atlantic, but also as showing certain peculiarities manifested by the disease as it occurs in this country. Since then forty additional cases have been reported in the same journal for March 27, 1875, by Dr. Chas. K. Mills.

The present collection embraces fifty new cases, to which, for more extended study, I shall add those previously reported. The majority of the cases were obtained as before from the case-books of the Infirmary for Nervous Diseases; the remainder were under Dr. Weir Mitchell's private care, the notes of which he kindly gave me, or were seen by me during my terms of service at the Children's Hospital.

In studying the eighty cases in regard to the *age* and *sex* of the patients, I find that there were—

Under 10 years of age . . .	28 cases	9 males	19 females
From 10 to 21 " . . .	52 "	18 "	34 "
Total	80 "	27 "	53 "

The preponderance of the females over the males shown by this summary agrees with the usual clinical experience, and may be explained by the greater liability of the former to disturbance of a nervous kind, and to their greater susceptibility, particularly during the age of puberty, represented by the second period of the foregoing table, to one of the great exciting causes of chorea, viz., fright.

Side affected.—In twenty-seven cases the choreic movements were found to be general; in eleven to be general, but chiefly marked upon the right side, and in ten to be general, but better pronounced upon the left side. In thirty-two cases the affection was absolutely unilateral, being confined in twenty instances to the right side, and in twelve to the left.

The reports on chorea published at different times have varied greatly in regard to this point, but I am inclined to think that the more modern statistical accounts all point to the right side of the body as being the side especially liable to be affected. The present table agrees with the opinions expressed by such high authorities as Drs. Hughlings Jackson and James Russell, and it also coincides with the results obtained by me in 1874; but it is directly opposed to the statements of a number of French writers, among whom may be mentioned Rufz, Trousseau, and Sée.

A certain number of cases of chorea beginning unilaterally ultimately become bilateral; but by far the greater number remain so throughout the course of the attack. Another, though a very rare result, is the passage of the disorderly movements from one side of the body to the other; thus, for instance, converting a right-sided chorea into one of the left side.

In regard to the alleged *cause* of the disease, in twenty-two cases out of the whole number none was discovered. In eleven cases it was attributed to fright; to rheumatism without heart disease in eleven cases; to rheumatism with heart disease in seven cases; to heart disease alone in six cases, and in three cases, though no actual exciting cause was found, to a strong hereditary predisposition to chorea.

Out of the twenty remaining cases the disease was ascribed to violent pain in seven instances, and to mental worry and miscellaneous troubles in thirteen.

The relation between chorea and rheumatism, or the rheumatic diathesis, and valvular disease of the heart has given rise to much discussion, and to the advancement of many theories. Dr. Mitchell has frequently at his clinics expressed the opinion that chorea and the rheumatism of childhood are of kindred parentage; in other words, the former is simply another expression of the causes which give rise to the latter, and though he does not deny that the disease is sometimes intimately related to heart disease through embolism, he still believes that the majority of the cases are not at all connected with such a pathological condition. A seemingly strong objection to this view is, that in most of the fatal cases where examinations have been made, vegetations have been found upon the valves of the heart. But in opposition to this it may be urged that possibly the cases associated with vegetations are the ones most likely to end fatally.

The doctrine of embolism as a cause of chorea was first announced by Kirkes, who held that whenever an association between chorea and rheumatism was found to exist, there had been an inflammation of the valves of the heart, and the association was not between chorea and rheumatism, but between chorea and valvular disease of the heart. That is to say, that vegetations formed upon the valves as a result of inflammation, and becoming detached, were washed into the general circulation, causing an irritation of the nerve centres. Dr. Kirkes did not attempt to localize the seat of the lesion, as has since been done by Dr. Hughlings Jackson, who, accepting the theory of embolism, maintains that it is the nerve tissue about the corpus striatum which is rendered unstable by plugging of the smaller branches of the middle cerebral artery. Dr. Jackson also insists upon a distinction being made between instability of nerve tissue and destruction of function; the result of the former being disorderly movements, and of the latter paralysis. This really places chorea on the

border-land of paralysis, and the frequent mingling of both conditions unquestionably gives much support to the view.

Season of Year.—In my first paper, I stated that Dr. Mitchell had called attention to the fact that chorea, as it occurs in Philadelphia at least, is much more prevalent in the spring than at other seasons, and the analysis I made forcibly proved the correctness of the observation. Out of the eighty cases which form the basis of the present paper, the attacks occurred in the spring in thirty-nine instances; summer, ten; autumn, seven; winter, twelve; total, sixty-eight. In the twelve remaining cases the point is not mentioned. Thus it will be seen that more than half of the cases in which the point was noted occurred in the spring. It is difficult to offer any explanation for this remarkable preference, unless, as I before suggested, it is due to the enervating weather of the season in question. We all suffer more or less from constitutional depression in the spring, particularly in the early part; indeed the so-called "spring fever" has become with us an almost recognized disorder. I am not aware of any mention having been made of the point as it occurs in connection with chorea in other parts of our country. In Paris, however, according to M. Sée, the disease is most apt to occur in the autumn, the season which, I think, very closely resembles the spring of Philadelphia in point of temperature and tendency to cause enervation. The disposition of chorea to recur in the spring may also be shown. Thus, out of eighty cases previous attacks were noted in twenty-five, and all but seven of these occurred in the spring. Of the twenty-five cases, fourteen had had one previous attack, eight had had two, and in three instances the patients had suffered from three.

The presence of *partial paralysis* was noted in seventeen cases, the loss of power being confined in ten instances to the right side, and to the left in seven. The frequent occurrence of "choreic hemiplegia" is, as I have already said, a strong argument in favour of the view held by Dr. Jackson in regard to the seat of the lesion of the disease, viz., the convolutions about the corpus striatum.

In this connection I shall call attention to remarks made by Dr. Mitchell at his clinics in regard to the motor manifestations of certain choreas. For several years he has pointed out the existence of peculiarities in these manifestations which may be summed up as follows: Usually choreas begin with the exhibition of mere awkwardness of habitual voluntary acts, and this increases until there is also added a new set of movements which in grave cases at last predominate. These are spontaneous meaningless motions, such as we all well know as choreic. In a certain number of the usual vernal cases, as well as in most of the post-paralytic choreas described by Dr. Mitchell, the second group of motor manifestations does not exist at all, or is seen in a minimum amount. That is to say, there is no disorderly movement except during an act of volition, when the amount of disturb-

ance varies. In other words, as in some scleroses the hand when not in willed motion is quiet, but when moved by will trembles. So in these choreas, there may be no spasmodic acts until volitional motions are attempted, when these latter become at once irregular and inco-ordinate.

A third group is also to be found, but it is a smaller one. It is made up of children, who never have very severe chorea, but in whom it is constant and automatic, but ceases whenever a distinct purposive movement is made. Just as in paralysis agitans in its early stage, the tremor vanishes during a volitional movement, to recur when the part comes to a state of passive rest. As might be expected, the two last varieties of chorea are mixed together, so to speak, in variable proportions to form the first and more common class, but not rarely we meet with type cases of the other forms.

Dr. Mitchell has also noticed now and then at his clinics, and more often in private practice, cases of what may be called *painful chorea*. They are unilateral nearly always, and are accompanied with dull aches in the muscles and about the joints. He has never seen in them a distinct unilateral outbreak of joint rheumatism, but still thinks that there is some reason to regard the pains as of rheumatic parentage. Dr. Mitchell has of late had reason to think that some cases of chorea are like the traumatic neuralgias, and certain examples of arthritis liable to be unfavourably affected by the atmospheric changes which herald a storm.

The *treatment* of most of the cases consisted in the administration of arsenic in increasing doses. Beginning with a few drops of Fowler's solution three times a day, it is our custom to increase the quantity by the addition of a drop to each dose on alternate days until a toxic impression is produced. When this occurs the dose is reduced to a few drops and again increased as before. In the more obstinate cases, many of which had resisted all other forms of treatment, the arsenic was pushed to its full toxic limit, that is, until decided puffiness of the face and gastro-intestinal irritation were produced. Fowler's solution was also in a few instances given hypodermically and with excellent results. The only advantage to be derived from this mode of administration is the lessening of the tendency of the drug to cause gastric disturbance—a complication which occasionally becomes an early obstacle to the treatment. We have also found that a much smaller and a less frequently administered dose is required to bring about the desired result of controlling the choreic movements.

Zinc in the form of sulphate was also employed in a number of cases, and with a result almost as good as that following the use of arsenic. Other remedies employed were bromide of iron, gelseminum, eserina, cimicifuga, and bromide of potassium, but of these the bromide of iron was found to be the most efficient. Arsenic, however, is the drug in which we place most reliance. Dr. Mitchell indeed, believing, as I have already

stated, that chorea and the rheumatism of childhood are of kindred parentage, has of late been using in rheumatism of the young full doses of arsenic, and even arsenic hypodermically. The results have been promising enough to justify the testing of this means by a larger experience. The rheumatic cases have been given arsenic up to the toxic limit, and until the face became swollen.

The results of treatment of the eighty cases were as follows: Cure in 56 cases; improvement or unknown in 24 cases.

All who have had experience in dispensary practice are aware that many cases fail to return to make a final report, and consequently the results cannot be positively stated. In the present instance, knowing that chorea when properly treated is a very curable disease, it is fair to assume that the majority of the cases marked "improvement or unknown" ultimately recovered.

ART. XV.—*Fibromata of the Skin.* (Fibroma Molluscum, cutis pendula, "Fibro-cellular Tumours.") By DE SAUSSURE FORD, A.M., M.D., Professor of Descriptive and Surgical Anatomy in the Medical College of Georgia (Augusta), Medical Department, University of Georgia. (With a wood-cut.)

JOHN T——, negro, æt. 37, of Scriven County, Ga., was sent to the Faculty of the Medical College of Georgia for treatment, by Mr. Scroven, an undergraduate, who writes thus: "At his birth, John T. represents that he was covered with tumours, varying in size from that of a mustard-seed to that of a partridge-egg. For about twenty years his health was good, though the tumours increased as he grew in size. In the succeeding ten years, they increased very rapidly in size, the one attached to the left mammary region attaining the dimensions of 12 inches in length, and 9 inches in circumference, the smaller ones ceasing to grow, but the large one continued its growth until last spring (1875), when it began to increase more rapidly, measuring 24 inches in length and 36 inches in circumference. He then had an attack of severe remittent fever, attended with sharp lancinating pains in the pedicle of the tumour at its attachment to the left mamma. After brisk purgation it decreased one-third in size, and the free use of quinia controlled the remittent, the pain ceasing as the tumour decreased. Remittent attacks recurred three times, but yielded to same treatment as in first attack."

In the presence of the medical students of the Medical College of Georgia, on November 1, 1875, after ether was administered, I proceeded to extirpate the large tumour, pendent from the left mammary region, which then weighed 18 pounds, was 25 inches in length, and 28 inches in circumference.

The écraseur was used, but the instrument breaking, on account of the dense fibrous pedicle, which nature had provided to suspend the enormous mass, being too unyielding, the operation was completed with the scalpel.

Three vessels were ligated, and the wound closed with silk sutures. Union was secured in ten days, when the patient was dismissed, and, from last accounts, was well, and ploughing daily.

Finding it necessary to abandon the écraseur, before making the incision

through the pedicle and what other tissues had not been constricted, I directed an assistant to apply, above the pedicle, the rubber tubing of Esmarch's bandage, so as to arrest the circulation through the branches of the axillary artery, distributed to this part of the body, as having found it most serviceable, upon a previous occasion, in extirpating a large fibro-cystic tumour of the mamma.

After the operation the smaller tumours were carefully counted, by dividing the surface of the body and extremities into sections, and they numbered sixteen hundred. A part of the large tumour, and a part of a smaller one which was snipped off with scissors, were submitted to George W. Rains, Professor of Chemistry in the Medical College of Georgia, for microscopical examination. He reports both specimens as composed of a mass of nucleated cells and fibrous tissue, with nucleoli measuring $\frac{1}{10000}$ of an inch, and nuclei $\frac{1}{4000}$ of an inch in diameter.

The photographer, by mistake, failed to strip the patient of all clothing, and thereby failed to represent the tumours on the inferior extremities, and especially a large one upon the outer side of the right thigh, which is not pedicellated, and involves a considerable extent of skin and subjacent tissues.

I respectfully refer the readers of this Journal to Dr. Edward Wigglesworth's article upon Fibromata, in the *Archives of Dermatology*, April, 1876, for more full information of the pathology and history of these remarkable growths.

AUGUSTA, GA., May 1, 1876.

ART. XVI.—*An unusual case of Cancer of Breast, with Tissue Infiltration and Cachexia; Child-birth and Post-partum Hemorrhage; Retrogression of Disease and apparent Restoration to Health for more than two years; Excision of Mamma owing to Renewal of Disease; Subsequent Appearance of Cancerous Nodules in the Skin; Death after two more years of slow decline, accompanied by some symptoms pointing to Intracranial Disease; Autopsy; Remarks.* By JAMES S. GREENE, M.D. Harv., of Boston (Dorchester), Mass.

THE patient whose case is here recorded first came under my observation in the summer of 1870. She was then forty-five years of age, married, and the mother of five healthy children. All her brothers and sisters, four in number, were living and well; as likewise her mother. Her father died of acute pulmonary trouble at the age of seventy-six. All the ancestors, as far back as to include the great-grandparents, lived to advanced age, and showed no taint of cancer or other hereditary disease; and the only instances of cancer known in collateral branches are a mother's cousin, upwards of seventy, and a maternal cousin still further removed, dying at eighty, both of reputed scirrhus.

This lady was above the middle stature of her sex, of good figure and erect carriage, having a fair complexion and light-brown hair. Born in Massachusetts, her life had been passed in her native State, excepting

some later years in California, where she had intermittent fever. Her health otherwise had been excellent. She was prevented from nursing her eldest child by the occurrence of inflammatory trouble of the left breast; with her other children lactation was normal.

About the end of April, 1870, she became pregnant with her sixth child. In June she revealed the fact, concealed for some unknown length of time, that she had a disease of the left breast.

Having arrived at Boston from California, July 5th, she consulted Dr. Henry J. Bigelow, who now distinctly remembers and describes her disease as "a thorough-going cancer of the breast, in active progress and highly vascular."

He advised non-interference, except with means for relief of pain, until after recovery from the expected confinement, and his advice was followed.

February 4, 1871, after a labour of two hours' duration, she gave birth to a healthy female child weighing ten and a half pounds. Flooding *ad deliquium* followed, though the uterus was prevented from relaxation by a firm grasp over the fundus, maintained from the moment of the expulsion of the child until the danger was past. The pulse was almost, and part of the time quite, imperceptible for two hours and more; but, by prompt and diligent efforts, restoration was finally secured.

There was no attempt at lacteal secretion in the diseased breast. Strength returned very slowly, and it was not until the latter part of May that she a second time visited Dr. Bigelow, and renewed the question of surgical interference. He found the tissues near the breast so implicated in the disease that he again, and finally, advised against an operation.

Her condition at the end of May was as follows: Dull eyes, a haggard countenance, paleness and sallowness of complexion, and weakness were marked symptoms, chargeable in part to the progress of organic disease, in part to anæmia resulting from the post-partum hemorrhage; while the vascularity of the local disease had probably lessened since child-birth. The left breast was hard and firmly adherent to the pectoral muscle, and was crossed by a horizontal furrow, into which the nipple was deeply drawn. This sulcus was filled with a scab, moistened by a slight, excoriating discharge, and the surrounding skin was bright-red for the space of a few lines. The left clavicle had a central point of extreme tenderness to touch, and above and below it the tissues were tense, indurated, and painful. There was also some thickening of the tissues near the right clavicle. Some glands in the left axilla were enlarged and tender; left hand was puffy and somewhat livid. Movement of the arm greatly restricted and painful; not more than three or four inches space between elbow and side could be tolerated in adduction, and rotation was almost wholly prevented.

Just at this time cundurango bark was first advertised to possess specific virtues against cancer.

The patient went to Washington, where she remained about six weeks, taking the bark under the direction of Dr. Bliss. The supply, scanty from the beginning, and doled out in the most frugal manner, then became exhausted; and, July 10th, with a certain improvement in condition, she returned to Massachusetts, there to await a new invoice of the alleged cancer specific. This was received, and its use resumed about the end of the same month. She then used, in addition to a decoction of ℥ij of the bark daily, a tincture made by percolation of the residue with alcohol.

August 8, ten days after she resumed the use of the drug, an opportunity was granted me to examine the breast. Its redness had disappeared, so had some of its former hardness; it was movable on the underlying muscles. Manipulation did not elicit pain nor tenderness. The horizontal sulcus which included the nipple appeared to be less tightly drawn. That portion of the scab which had filled the inner half of it, having become loosened, had been removed by the nurse and had not been reformed. There appeared to be a letting out of a margin of skin which had been drawn into the furrow. There was a spot on the left clavicle still a little tender to pressure; and the infiltration of the adjacent tissues, though less marked than before, was noticeable. There were no longer any tender or enlarged glands in the axilla. The puffy, livid appearance of the left hand, remarked only a few days previously, was wholly gone, and the arm had regained considerable freedom of motion.

August 16, a further "letting out" of the skin from the sulcus in the breast had become very perceptible, and the range of movement of the arm was daily increasing. There had been a slight menstrual flow two or three times, at irregular intervals, and I think the final cessation of the catamenia took place about the last of August.

The history of the next two years of her life may be condensed into a few sentences. She rapidly reached, and maintained during most of that period, a condition of thoroughly good health; having early lost all outward signs or symptoms of disease. Complexion, eye, and movement all betokened health and strength, and in 1872 she weighed more than ever before. Coincidently all local infiltration of tissue disappeared. The arm regained its entire mobility and freedom from lameness, if not its full strength.

The process of absorption of morbid deposits did not reach its full completion in the breast itself, for the nipple continued to be in some degree retracted. The shallow groove around it became free from any unwholesome secretion, and the gland, though harder than normal, was without tenderness.

During this period she was taking liberally of cundurango, under the direction of Dr. Bliss. Sometimes its use was suspended for awhile, but, allowing for these intervals, she probably took it in full doses at least two-thirds of the time.

In the later months of the period now under notice, while her general condition remained good, and she ate and slept well, there was nevertheless a perceptible lowering from the standard of thorough good health. During some of these weeks she would be rather nervous, and would feel fretted because she had not her usual executive ability. All this time her residence was in Massachusetts, though visits of a few weeks were made both in California and at Washington.

In September, 1873, the family removed to Washington, and I did not see the patient until the following April. I learn that she began, as early as October, to be apprehensive of a renewal of the disease in the breast; but she only took her medicine the more diligently, and said nothing. It was not until February, 1874, that her husband became aware of the recurrence of local symptoms; and Dr. Bliss, being consulted, advised, and soon afterwards performed, the operation of excision of the mamma.

The wound healed well, but the patient was still weak from the effects of the operation, when required to undergo the fatigue, anxiety, and responsibility attending the illness and death of her mother. This involved a

journey to the north early in March, a return journey with the sick woman the beginning of April, devoted attendance for rather more than two weeks longer, and a second journey to Massachusetts with the remains for interment. To this period, immediately succeeding the surgical operation, are referred the slighter beginnings of a new class of symptoms, traceable to the nerves and to the nerve centres, pointing to a stealthy, hidden influence, harassing, weakening, and finally destroying the powers of life near their source.

The increasing feebleness, which I could not fail to notice on the occasion of the above-mentioned visits, was attributed by her friends to fatigue and anxiety. It has since been said that she never seemed to recover from the shock of the surgical operation. Periods of languor, pallor, indisposition to move occurred, and increased in frequency. Rigors came at irregular intervals, suggesting the revival of former malarial influences. Pain, both of fixed and darting character, in back and limbs, became troublesome. This was called rheumatism, or sometimes neuralgia. Her husband, ever devoted and full of resource, maintained that she was overcome by the heat of Washington latitude; and, July 1st, brought her north to Massachusetts, where she remained for six or seven weeks, always bravely resisting the progress of enfeeblement.

August 18th she was taken by her husband overland to California, where, almost as soon as she arrived, she succumbed to nervous prostration. This illness proved serious and prolonged. It was called malarial fever, from the frequent occurrence of chills; there being a settled policy never to admit the possibility of a return of cancerous cachexia. Indeed, cundurango was held to be the restorer and preserver of her life, and was still used largely. These nervous chills were frequent and prolonged; a sip of water would often induce one. Another persistent and perplexing symptom was a quick, feeble, very irregular, and intermittent pulse. Quinia, to the extent of twenty grains daily, was used, with good effect on the pulse.

I do not learn that much fever was present, but do not suppose that any thermometric observations were made. There was *no headache*, and the patient's own mental operations were as clear and rapid as ever; but she began to require that any one who addressed or read to her should *speak slowly*. At other times she could tolerate no talking near her. In the middle of December, four months after leaving the Atlantic coast, she had rallied sufficiently to venture upon a return. The journey, made with every modern appliance for a sick person's ease, and with attentive nursing, did not cause exhaustion nor apparent strain of such of her powers as remained; but on her arrival at Washington, every attempt at resuming the least part in social or home affairs resulted in most discouraging prostration, attended by pallor and disinclination to move. Talking in her presence would then be distressful. She no longer had chills.

Through that winter, and until the succeeding summer of 1875, she remained at Washington, and this unequal, but still courageous contest continued against the lurking, concealed disease. One letter would inform us of her sitting up to receive visitors, or even driving out to Arlington Heights; the next would describe her in a state of prostration seemingly but little less than collapse.

She came to Massachusetts, her last journey, the first of July, 1875. The trip seemed to exhaust the last particle of physical energy. In one or two drives that she attempted after her arrival, the pallor, the dull,

glassy eye, the expressionless countenance, gave her almost the aspect of a corpse sitting and moving; nevertheless nearly six months of existence still remained.

My attention was called to the presence, on the integument of the head and back, in the flexure of the thigh, and in the line of the cicatrix on the breast, of several painless nodules, probably twenty or more in number. In shape and size they were like fully-developed vaccine vesicles, umbilicated, without areolæ, and, in colour, like the surrounding skin. They had begun to appear several months previously, and did not increase in number nor change in appearance during the remainder of life; but some of them, pressed upon as she lay, finally became very painful. At one or two points along the scar on the breast there was a slight scarlet blush, and this also henceforward remained stationary. Not only the cicatrix, but the whole surrounding skin over the space formerly covered by the mamma, was firmly fixed to the chest walls; and this region was the seat of a good deal of pain. Soon, however, pain of a much severer and more persistent character attacked the right side, beneath the lower ribs; and when this ceased, after about a month, there remained lasting numbness of the same parts. About the same period there occurred hyperæsthesia of the skin and mucous membrane of the cheek and lips on the left side, and of the surface of the chin; and this becoming persistent, though unattended by any marked appearance of motor paralysis, nevertheless prevented mastication, and limited the patient during the remainder of life to liquid diet. There was also incipient palsy of the left upper eyelid; and by the middle of August this had slowly developed into complete ptosis, with divergent strabismus of the same side, and she spoke of seeing objects double. During this time her rapidly failing strength compelled the relinquishment of all effort. She ceased to ride, to sit up, to recline in a hammock. The slightest muscular effort was usually attended by pain somewhere, and followed by exhaustion. Remaining almost motionless in bed, sounds, even the slightest, became intolerable. All noises, even to the rustle of a dress, were abolished in the house. Nevertheless, in her quieter moments, she read with her one useful eye, and wrote cheerful letters to her husband, then unavoidably in California, concealing from him all unfavourable tendencies and symptoms. These became so threatening, however, that, in the middle of August, I sent a telegraphic message advising his immediate return. She, ignorant of this, sent the same day a brave letter, while the effort of writing cost her some days of great pain in the back, shoulders, and neck, keeping her for the time almost motionless. The pulse at this period was once more irregular, intermittent, and weak. A little later, under the use of quinia, it regained considerable steadiness. The distressing hypersensitiveness of hearing gradually ceased during September; and, about two months before death, it was accidentally discovered that there was deafness of the right ear.

Among the symptoms always noticeably absent were irritable stomach and headache. During the last weeks there were times when her head "felt dreadfully"—she could not describe it, but it must be bathed or stroked or combed *very* carefully, avoiding the nodules, and she must not be troubled with words. She partook liberally of a variety of liquid nourishment until the last hours of life, but during the last few days the sense of taste was manifestly lost. She usually had considerable sleep at night, and some by day. Decubitus was wholly on the back; she could move her limbs, but had no power over the trunk. Passive motion of the

upper part of the body was very distressing, and for days together the slightest attempt at changing its position inflicted torture. Constipation, and the occasional resulting necessity of relieving the rectum of its accumulated contents, became a source of serious suffering and exhaustion.

The tendency to remission and exacerbation was traceable throughout, so that while the tide of disease constantly encroached upon the powers of life, it did so by successive wave-like advances and recessions. Thus, as in Washington months before, brief intervals of activity came between periods of prostration, so, now, days of comparative comfort intervened to relieve the distressful soreness of body. At times her tongue, commonly deep red and covered with a thick white coat, gradually became, and for a short time remained, clean and normal in colour. Towards the close, short times of such exhaustion came that life often seemed nearly pushed from its foothold in the body; then rallied and made a feeble stand.

I do not attribute this trait to malarial influence, for I do not know that it was more noticeable than in many cases of prolonged disease where the circumstances exclude suspicion of such agency. Indeed, this tendency to periodicity, seen everywhere throughout nature, was, perhaps, especially conspicuous here owing to the level steadiness and undeviating onward progress of the current of disease, permitting a view of each undulation in its course.

In the last days of life the power of articulate speech had become so far withdrawn, partly through weakness, partly from actual palsy, that she uttered only a few words very indistinctly.

Death came the 16th of December, 1875, from no other apparent proximate cause than asthenia. The power of voluntary motion gone, slowly the vagus nerve seemed to yield its function. The conscious mind probably maintained its seat almost to the end.

It will be seen from the foregoing record that the duration of her disease, allowing for the probable time when she was withholding the knowledge of it, was not much less than six years.

More than four and a half years of life remained after the opinion was given by the highest surgical authority that the disease had already too far contaminated her system to warrant an attempt at relief by the knife.

Following this expression of opinion, began rapid retrogression of the disease and recovery of health, fairly maintained for nearly two years and a half. Then came local relapse, culminating in excision of the mamma and complete removal of all external evidence of disease; and finally, thereafter, something less than two years of slow decay preceding the fatal issue. Her age at death was fifty years and nine months.

The day following death I availed myself of permission gained to make a preliminary examination of the contents of the thorax and abdomen.

On the whole left front of the thorax the skin was tightly adherent to the ribs and intercostal muscles. The left lung was free from disease, but contained no air, being compressed by a collection of from two to three pints of clear serum. From the base of the lung extended a narrow, very strong fibrous band to the costal pleura. The right pleural cavity contained a half pint of serum. The spleen was somewhat enlarged. All the other parts appeared healthy.

Five days later, leave was granted to examine the brain; and an autopsy was carefully performed by Dr. R. H. FITZ, Pathologist of the Massachusetts General Hospital, who has kindly furnished me with his minutes, as follows:—

"*Autopsy.*—Six days after death. Body exceedingly well preserved, much emaciated. A cicatrix, resulting from the removal of the left breast, in the vicinity of which, as well as elsewhere in the skin of the thorax, abdomen, and head, were several dense, flattened, rounded, somewhat elevated cancerous nodules, often umbilicated.

"The pericranium was infiltrated with the new formation as dense, gray slightly translucent patches. Calvaria thick and heavy from condensation of the diploetic portion. Dura mater unusually adherent; its periosteal surface presented diffused, slightly elevated patches of new formation. The inner surface of the dura, especially on the right side, in the frontal and parietal regions, studded with dense, gray nodules and patches, in parts confluent, the largest three-fourths of an inch in diameter and one-fourth of an inch in thickness, to many of which the pia mater was intimately adherent. Between and sometimes upon these growths the dura presented a delicate, thin, vascularized false membrane, containing numerous small points of hemorrhage. The vessels of the pia mater, injected; over the pons Varolii, anteriorly, slightly thickened and opaque. The brain in general apparently normal; the ventricles not dilated.

"The third pair of cranial nerves on the left, just before passing under the clinoid process, became suddenly of nearly twice the ordinary thickness, gray, dense, homogeneous, thus extending along the wall of the cavernous sinus.

"A nodule of new formation, as large as a pea, was found in intimate relation with the fifth nerve as it entered the right Gasserian ganglion. The motor root of this nerve was outspread upon the nodule. The thoracic organs presented no evidence of disease; the pleural surfaces apparently healthy. Spleen moderately enlarged, dark, and firm. Nothing abnormal found in the abdominal cavity.

"The structure of the nodules in the dura mater and skin was composed of a dense, fibrous stroma inclosing alveolar spaces, round, oval, and elongated, in which were groups of large, irregularly polygonal cells, but little degenerated and with large nuclei. There was no evident intercellular substance. Their arrangement at times was that of anastomosing bands.

"*Diagnosis.*—Cancerous meningitis and neuritis, with hemorrhagic pachymeningitis.

"With regard to symptoms, the examination explains only in part. The affection of the muscles of the left eye is apparent. The alterations united with the right fifth should be rather neuralgic, motor of the masticatory muscles, with possibly some affection of taste through the lingual nerve.

"The hemorrhagic inflammation of the dura—the *pachymeningitis interna* of Virchow—might explain a good many mental peculiarities, to say nothing of subjective and objective phenomena. The left-sided facial paralysis below the eye was not explained anatomically."

Among the many points of interest in the foregoing history, the signal retrogression of the far-advanced disease is especially prominent and noteworthy.

Velpeau emphatically denies the possibility of such an occurrence.

"Une fois né, on ne voit point le cancer rétrograder absolument; si la tumeur diminue parfois sur un point, c'est qu'il s'en forme ailleurs ou que l'économie s'infecte. Il n'y a pas plus lieu d'espérer la disparition spontanée d'un cancer quand il est petit, du volume d'une tête d'épingle par exemple, qu' à partir du moment où il égale le volume du poing ou de la tête." (*Traité des Maladies du Sein*, Paris, 1858, p. 513.)

He admits, in scirrhus, one seeming exception, namely, the atrophic variety, so called; but avers, in opposition to Virchow, that even this form is as steadily progressive in its way as any other.

This atrophic scirrhus, however, has no analogue nor illustration in the case I have detailed, which, as we have seen, is an instance of retrogression

not merely of the tumour, but of all visible signs and symptoms of disease, both in the tissues surrounding the tumour and in the general economy; and, as such, remains among recorded cases a very rare, and, perhaps, entirely unique one.

Is it possible satisfactorily to account for the phenomenon of retrogression as here displayed?

Dr. Bigelow emphasizes the consideration that the juiciest period of the disease was coincident with pregnancy, when the mamma was in its highest state of functional activity; and his comment, I suppose, would be that the most favourable time for a pause in the progress of malignant disease is when local physiological activity has just ended. It is even further not unlikely that a physiological retrogression of the functionally enlarged breast might be associated with the retrogression of a neoplasm in such breast.

Secondly, it is possible that not only the physiological crisis, but the appalling puerperal accident attending it, proved ultimately an advantage. If the patient had constitutional power enough to rally with any vigour from such a shock and loss of vital fluid, the repair would naturally be less obstructed, and the healthful efforts would gain better ascendancy after the veins had been drained of the mass of blood which must, at that stage and condition of the disease, have been loaded with morbid material.

Next, these physiological conditions were reinforced by psychological ones of no little power. This patient had a vigorous constitution and a strong will. She had also a susceptible mind and an impressible nervous organization. One possessing such a temperament would droop rapidly when faced by the horrible spectre of *cancer*, and assured that hope must be left behind; and under such circumstances the disease would advance with redoubled swiftness; but aided by the same temperament, the forces of life would grandly reassert their influence, if hope were substituted for despair by the assurance of rescue by means of an unlooked-for, and, until then, unknown antidote.

Cundurango bark was just then introduced through the channel of the State Department at Washington, and extraordinary specific powers against malignant disease were claimed for it. The husband of my patient, standing near this official source of the meagre information then received concerning the alleged remedy, willingly convinced himself that here was the destined agent of her cure. I think it is literally true, and not a mere figure of speech, that her failing powers were first re-energized from the ample resources of his overflowing, sanguine vitality, lavished on her with the deliberate purpose to admit no doubt nor questioning. The returning health current, when thus set in motion, was strengthened and steadied by the power of her own will, the natural vigour of her constitution, and every aid that change of air and mental diversion could furnish; while it was kept free from contamination by the depuration of

her blood through depletion, and by the cessation of functional activity in the tissue which was the local fountain-head of the disease.

All these conditions and agencies, namely, the physiological crisis, the hemorrhage, the quality of the patient, the incidents and accidents of her station, are, without doubt, when combined, sufficiently powerful to account for a prolonged check in the downward career. But can they, exceptionally potent as they are, be accepted as adequate explanation of retrogression of the advanced local disease? Or must this, for the present, remain one of the unexplained, as well as exceptional, facts in the natural history of cancer?

I cannot answer. But the tissue infiltration, the enlarged and tender axillary glands, and the subsequent resolution of these morbid deposits were, and as a matter of record still remain, stubborn facts.

What of cundurango? it will be asked.

There is, I suppose, a qualified sense in which the idea of specific remedies is still admissible in scientific discussion. In no sense has cundurango, during the ample time which has elapsed since its introduction, established a title to be regarded as a cancer specific, whether by published results of its use or by chemical analysis of its components. In default of supporting evidence, I do not think the facts of this history, fairly interpreted, justify such claim.

I neither affirm nor deny its possession of medicinal properties suited to the general needs of persons debilitated like this patient; but the discussion of such alleged virtues is foreign to the purpose of this paper; and I am, therefore, unable to say more than that its public announcement came at a fortunate time for the patient by setting in motion potent agencies in her behalf.

In closing it will be well to recall the principal features which make the case memorable:—

1. The exceptionally clear family record.

2. The employment of a supposed specific which, as such, could neither earlier nor later than that very time have commanded the unswerving confidence of the patient and her friends; not earlier, because until then unknown—nor later, because since generally discredited after ample trial.

3. The retrogression of disease coincident with the employment of the alleged remedy.

4. The subtle manner in which the disease made its second advance and final triumph, wearing the garb of other affections—anæmia, neuralgia, neurasthenia, rheumatism, intermittent fever, I had almost said hysteria.

5. The wonderful hold upon life displayed both as a physical and mental trait, and the pre-eminent fortitude and bravery of the patient, surpassing any that I ever witnessed.

6. The almost total absence of the usual symptoms of meningeal

trouble, while the dura was so extensively metamorphosed by cancerous disease.

7. The entire non-implication of the mental faculties throughout.

8. The thoracic and abdominal pains, the intolerance of movement, the left facial palsy, and the hypersensitiveness of hearing, followed by deafness—all probably of centric origin, but not directly explained by the autopsy.

9. The explanation of the ptosis on the left side, by the discovery of the cancerous enlargement in the course of the third nerve, and *per contra*, the absence of symptoms, either motor or sensitive, during life, dependent on the similar but greater tumour found in the fifth nerve on the right side.

10. The unsuspected and unexplained hydrothorax.

11. Finally, the peripheral character of the disease from beginning to end, neither the brain nor any thoracic, abdominal, or pelvic organs or tissues being implicated in any recognizable degree.

DORCHESTER, May 1, 1876.

ART. XVII.—*Stricture of "The Œsophagus," from the Action of Caustic Potash; Œsophagotomy; Death; Post-mortem.* By CHAS. W. HORSEY, M.D., of Fernandina, Florida.

I WAS called hurriedly May 2, 1874, to see Eddie de F——, about five years of age, and informed that he had just swallowed some *concentrated lye*, which had been mixed for scouring and carelessly left within reach of the child, who had taken a mouthful, mistaking it for milk, which he was in the habit of drinking from the same cup. The mucous membrane of the entire buccal cavity, surface of the tongue, fauces, and pharynx, as far down as I could see, was raw, bleeding, and already greatly swollen, with portions of the caustic fluid still covering the parts.

The posterior nares, and to some extent the anterior portion of the nostrils also, were affected, indicating that the caustic had excited violent reflex action, and forcible ejection of a part of it through the upper air passages.

His breathing, though somewhat hurried, was not otherwise affected, and after careful examination, I was satisfied that none of the caustic had entered the larynx. I immediately proceeded to neutralize the poison with *strong vinegar*, which happened to be at hand, and succeeded in getting enough down him to satisfy myself that if any had entered the stomach, it was thoroughly decomposed.

Pure *olive oil* was then given to soothe the intolerable pain and burning, and the following mixture prescribed as an application to the affected parts. R. Potass. chloratis, ℥ijss; acid. carbolici, f℥j; glycerinæ, f℥ij; aquæ ad ℥viij. To reach the surfaces lower down, I directed a teaspoonful of the mixture to be given internally every two hours, and ordered the

nostrils to be syringed out with the same at intervals of three or four hours.

A teacup of *iced milk* was ordered every hour; small pellets of ice allowed as often as desired, and directions given to withhold all solid food.

The act of deglutition, though exceedingly painful, could be accomplished perfectly, and the absence of vomiting or retching, and pain or tenderness on pressure over the region of the stomach, with retention of matters ingested, caused me to conclude that but little if any damage had been done that organ.

10 P. M., there was decided febrile reaction, incessant hacking cough, and straining to clear the throat, with great dysphagia and much restlessness. An anodyne was given with directions for its repetition as often as necessary during the night, and the treatment continued with the addition of *cold applications* externally to the throat, renewed every ten minutes.

May 3. 8 A. M. He had passed a tolerably quiet night under the influence of the anodyne.

The affected parts were immensely swollen and inflamed, covered with dirty sloughs, and shreds and sheets of detached epithelium, with great tumefaction of the whole cervical region. Deglutition very difficult, but, the ingesta still entered the stomach, it being, however, necessary for him to swallow very cautiously, to prevent spasmodic constriction of the pharynx, and return of the fluids given.

The constitutional disturbance was considerable; pulse 125, temperature 102.5°, though the continued absence of gastric symptoms relieved my mind of apprehension in regard to serious implication of the stomach.

Bowels and kidneys in good condition. Breathing somewhat accelerated, but, apart from the interference with the ingress of air, by the swollen tonsils and pillars of the fauces, normal.

The dysphagia being so great, I suspended the frequent use of iced milk, and instead, ordered enemata of beef essence, yelk of eggs, and brandy, at intervals of two or three hours. Treatment continued in other respects.

4*th*. Patient very restless; pulse 130; temperature 103.6°. Deglutition very difficult, but he craves food, and matters given enter the stomach. There was considerable discharge of muco-purulent matter during the night, together with the looser sloughs. Discontinued the cold applications to the throat.

5*th*. Condition very much the same; pulse 120; temperature 102.5°, denoting less fever. Abundant discharge of pus and mucus. Treatment the same.

6*th*. Appears a little brighter; pulse 115; temperature 101°. Is able to swallow with a little more ease. Sloughy membranes coming away abundantly, with copious purulent discharge, leaving behind extensive ulcers wherever the entire thickness of the mucous tissue had been destroyed. Breathes a little better through the nostrils, denoting some improvement in that region. Is allowed strong broths, milk, and other bland semi-fluid nourishment by the mouth, and the enemata discontinued. The local applications the same. Upon a close examination I discovered that the upper surface and edges of the epiglottis had been severely affected, leaving them ulcerated.

7*th*. Is beginning to improve. Ordered zinci sulph. gr. x to ℥j; to be added to the mixture for local use, but continued the same without the zinc as an internal remedy, decreasing the frequency of the dose to three times a day.

From this time the little patient began to improve, until, at the expiration of four weeks, but little trouble remained.

It had been necessary during the last few days of treatment, to touch a few points of granulations on the tonsils and posterior part of the pharynx with nitrate of silver, which healed them rapidly, leaving the parts in remarkably good condition under the circumstances. In watching the case closely, I had definitely concluded that none of the caustic could have entered the stomach, but feared that the mucous membrane of the lower portion of the pharynx and the upper part of the œsophagus had been damaged to such extent as to cause future trouble.

The child had always been decidedly strumous in appearance; his father died one year previously of tubercular phthisis, and the mother exhibited an unmistakable phthisical diathesis. In discontinuing daily attendance upon him, I therefore prescribed cod-liver oil and phos. lime, upon which he did well, and I saw him only occasionally during the succeeding two or three months.

About four months after the accident, in August, the mother consulted me in regard to the child, stating that he was frequently compelled while eating, to leave the table suddenly and vomit. He seemed entirely unable to control it, but there was no accompanying nausea, and he generally returned to finish his meal, or eat another, if the vomiting happened after he had eaten.

There was no pain or tenderness on pressure over the stomach, nor did he complain of any at other times. His bowels were in good condition, and the food fairly digested. The matters vomited consisted simply of the food taken in, and no pus or other abnormal element could be detected.

His general health not being strong, I again prescribed tonics, with a carefully regulated diet, but was apprehensive, from the symptoms, that either ulceration of the stomach existed, and I had been deceived in regard to the non-entrance of the potash, or, that raw and unhealed surfaces still remained at some point in the œsophagus.

Under the treatment the vomitings became less frequent, and his health improved to some extent.

He was carried north in September, and I did not see him again until late in December of the same year, when I was sent for on account of some difficulty he experienced in swallowing, apparently of a choking sensation. I examined the parts carefully, and finding the tonsils hypertrophied, and the uvula elongated and inflamed, concluded that this condition probably caused some of the sensations of which he complained, but, instinctively dreaded the development of stricture.

Astringent gargles and applications were ordered, and the case kept under close observation for several weeks, when, no improvement following, the above-named parts were excised, with the idea that they interfered, to some extent at least, with deglutition—and their removal would relieve any reflected symptoms that might exist, as well as the impediment that they offered in swallowing. The parts healed speedily, but the operation failed in benefiting the main difficulty, which, recurring at longer or shorter intervals, denoted clearly that organic obstruction was developing in the tube.

The inability to swallow at first continued for a short while only, but gradually, during a period of three or four months, persisted longer, 24, 36, and 48 hours passing, during which time not an atom of anything could enter the stomach.

At these times the child became perfectly frantic with hunger and

thirst, incessantly crying for and attempting to swallow nutrient fluids and iced water, which, passing as low as the stricture, were immediately returned. Having from the beginning feared the ultimate occurrence of organic stricture as the result of cicatricial contraction, I had warned the mother against allowing him solid or very stimulating food, directing that his diet should consist exclusively of semi-solid and fluid articles of non-irritant character. In observing the phenomena at these seizures I very soon noticed that they were excited under one of two conditions, or a combination of both: the one, when he attempted to eat solids or stimulating substances, which appeared at once to excite spasmodic contraction and closure; the other, whenever he "took cold" the mucous surfaces becoming congested and swollen, narrowed the passage, at the same time rendering the surfaces more susceptible to irritation, induced the most persistent attacks.

My treatment consequently depended upon the existence of the one or the other condition. If simply spasmodic constriction, I directed 10 or 15 grains of chloral hydrate to be injected into the rectum, along with some nutritious fluid; kept him in bed and repeated the dose as often as required, and succeeded usually in relieving the closure after two, or at most three doses of the chloral. This agent was chosen, because it rapidly affected him, and after sleeping six or eight hours, he would usually awaken relieved, be able to take his food and seem but little depressed. On the contrary, chloroform, when given to full anæsthesia, which was always necessary to overcome the spasm, prostrated him to such an extent that it took days for him to fully recover.

When the closure depended upon congestion of the mucous membrane, external applications were made to the throat, and astringent gargles and liquids given internally, with as much iced water as he desired, and if, as sometimes happened, spasmodic complication existed, a full dose of chloral was given at bedtime. If the closure endured for over twelve hours I insisted upon the systematic use of nutrient enemata to keep up his strength. The amount of food that he would take after a relaxation of his throat, if allowed to do so, was incredible.

Despite these frequent interruptions to nutrition, the child kept in pretty fair condition, exhibited evidences of growth, and mentally was unusually bright for his age.

I made frequent examinations of the parts, both at the time of closure and intermediately, with all characters of bougies, catheters, and probangs, attempting patiently and persistently to pass and dilate the stricture, but succeeded on one occasion only in doing so, my instrument at that time (a No. 8 black, bulb-pointed bougie), after getting into the stricture, being so tightly grasped that it was impossible to get deeper, and required much force to withdraw it. After repeated trials and failures, it was evident that a gradual narrowing of the calibre of the tube was taking place, which sooner or later would prove fatal unless, by operative measures, it was possible to reach the stricture, and by its incision or division render the use of bougies practicable for dilatation. In measuring the depth and location of the stricture, my instruments had invariably been arrested at the same point, viz., a little below the beginning of the œsophagus, about on a line with the fourth and fifth rings of the trachea. Making due allowance for spasmodic constriction, I naturally concluded that it began, or was located about this point.

The facts and probabilities of the case were candidly stated to the mother, and the question of operative interference discussed. She was

unable to make up her mind to any definite action, and being in the habit of visiting the North every summer, I advised her on her next visit, which was shortly to occur, to consult an eminent specialist on diseases of the throat, whose address I gave her, in regard to the child's condition. She was compelled to postpone her departure a week on account of a closure of her son's throat occurring the night before they were to start, which proved to be the most serious that he had yet suffered, lasting for *four days* or 96 *hours*, during which time he was sustained entirely by enemata.

He stood the journey North very well, and after a few days' rest was taken to New York city, where it was found that the gentleman to whom I had referred her was out of town for the summer. She was then induced by friends to take him to the "Metropolitan Hospital" in that city.

He is there stated to have been thoroughly examined, with and without chloroform, the laryngoscope and other instruments being used, but without satisfactory results or any encouragement being given in regard to his future. He returned home about Dec. 1 (1875), after an absence of over three months, during which time the closures had occurred at varying intervals, sometimes a few days only, and again a week or two elapsing between, continuing from a few hours to two or three days. Between times, however, the mother, a very observing woman, noticed an increasing inability to swallow anything but the simplest nourishing fluids, these even requiring a longer time to pass than formerly. After his arrival home, two or three weeks passed before the occurrence of another complete closure, which, however, lasted only a short time, and then relaxed. For two or three weeks immediately following he suffered almost daily, but as his condition had become so chronic, the attacks or rather closures failed to excite the alarm that they had in the beginning, and consequently I was seldom sent for or informed.

Over a year previously he had become affected with a chronic cough, accompanied with more or less expectoration, and auscultation denoted tubercular deposit in the apices of both lungs. On his return from the North this time I noticed an increase in his lung symptoms, and that he was greatly emaciated.

I continued to advise the use of cod-liver oil and tonics, and now saw him only occasionally, until Sunday, Feb. 13, 1876, when I was sent for and informed that his throat had been closed since Thursday before (the 9th), and that nothing had entered his stomach since that day.

Every means that had on former occasions proved successful was now tried in order to relieve it, including thorough anæsthesia by chloroform, and the patient use of bougies and catheters, but without avail. He was nourished every two hours by enemata of beef essence, eggs, and brandy, but his cravings for food had become so great that he incessantly swallowed mouthful after mouthful of different kinds of nutrient fluids, until gallons were consumed in the vain effort to satisfy his terrible desires. Chloral was given *per rectum* occasionally to compel sleep, in order, for a little while at least, to stop these ceaseless efforts, which were so distressing to himself and painful to his attendants.

His mother had long since been aware of the probable termination of the case, and of the only alternative offering the slightest chance for the prolongation of his life, but had always refused consent to an operation. She was now told that it could not be postponed if anything was to be gained by it, and that under any circumstance the case was desperate, and the chances doubtful. She would not consent until it was plain, even to herself, that death was inevitable, and on the morning of the 17th, as-

sisted by Drs. E. G. Clay and J. D. Palmer, I undertook the operation of œsophagotomy.

The child was put under the influence of ether, and the usual incision for that operation made on the left side of the neck. Owing to his extreme emaciation and complete dryness of his tissues, the operation was almost bloodless, and comparatively easy of performance, and in a few minutes I reached the œsophagus; catching up the tube, I opened it, but was unable to force a bougie, which had previously been passed down as a guide, through the opening.

It was withdrawn, and a smaller one introduced through the wound and passed upward to ascertain if the stricture was above the opening; it, however, came out of the mouth. The direction of the bougie was then reversed, and it was passed toward the stomach, when, after entering about two and a half inches, it could not be made to progress further. Smaller instruments, both of metal and gum, were patiently and carefully tried, and some force used to pass, but without success, until the profoundly depressed condition of the child compelled all efforts to cease. The wound was closed with carbolized silk sutures, and a compress of lint soaked in carbolized oil applied, and kept in place with a light bandage.

He reacted perfectly in about an hour, and beginning to complain of pain in his neck, was given 15 mns. of tr. opii per rectum, put in a warm bed, and directed to have nutrient and stimulant enemata every hour. He slept quietly during the greater part of the day, but was evidently sinking, his weakness being extreme. He exhibited full consciousness whenever he awoke, but was too much prostrated to move, and did not call for food or drink after the operation. He grew weaker during the night, and died next morning at 9½ o'clock, about twenty-two hours after the operation.

Post-mortem.—The body was opened three hours after death in the presence of the gentlemen who had assisted the previous day. The incision made for the operation was extended downwards, and the œsophagus followed from the opening down to its termination in the stomach. The stricture was found to be situated *within the thorax*, about one and a half inches below the clavicle, and four inches from the cardiac extremity of the œsophagus.

The portion above the stricture was, as usual in such cases, dilated, and that below, very much contracted. On first opening the abdomen, the stomach was immensely distended by gas, which escaped, leaving the organ entirely empty. After carefully noting the condition of the trachea, which was found to be perfectly healthy, and failing to discover any adhesion or other abnormal relation of it to the œsophagus, the latter, together with the stomach, was separated and removed. The stricture itself, consisted of an extreme narrowing of the tube for one and one-fourth inches, *into a dense fibrous cord*, about one-fifth of an inch in diameter, without any adhesion, thickening of the adjacent cellular tissues, or other evidence of hyperplastic action.

On dividing the tube in its entire length, the following appearances were found:—

From the pharynx down to the commencement of the stricture it was dilated, being about one and a half inches at the beginning, and tapering to three-fourths of an inch just above the stricture. The mucous membrane, from the posterior part of the pharynx downward, exhibited everywhere evidences of the caustic action in patches of cicatricial tissue more or less extensive, completely devoid of epithelium, with intermediately great hypertrophy of the membrane remaining. On cutting through the

strictured part it was found to be tough and fibrous, having lost entirely its normal histological characters. The entrance was through a ring of fibrous tissue about two lines thick, and about the diameter of a No. 8 catheter, gradually narrowing until, an inch and a quarter below, it terminated in complete occlusion. Below the stricture the mucous membrane was perfectly healthy, and the stomach presented no trace of the caustic.

Numerous softening tubercles were found in the lungs, confirming observations made before death.

The point of especial interest in this case is, the length of time that life continued after the development of almost complete closure. For at least eight months the child was sustained, practically by enemata, and yet, until within two and a half months of his death, continued in fair bodily condition, and gained a little in stature.

The propriety of an operation in this instance may possibly be questioned on theoretical grounds, but finds, in my judgment at least, ample justification in practice, in the attempt to relieve, even under desperate circumstances, the extreme horrors of death by starvation; horrors only fully appreciated, perhaps, by those so unfortunate as to be compelled to deal with them.

That œsophagotomy, under such circumstances, is to be preferred to gastrotomy, seems also natural, not alone from the fact that the statistics of the latter are even more unfavourable than the former, but that, where temporary relief alone is aimed at, the conditions determining the success of the latter in young children, are too many, and the constant dangers of gastritis and peritonitis so great as to give preference, in them at least, to the former.

The post-mortem demonstrated very clearly that under no circumstance could an operation have been successful, and surprised me no little, that I should have been so much mistaken in determining the depth of the stricture, after the trouble taken to do so, as well as by the extreme atrophic condition of the parts. I had been prepared to find extensive adhesion and thickening of the tissues, but not such complete atrophy.

March, 1876.

ART. XVIII.—*Case of Gunshot Wound of the Spinal Cord.* By HENRY T. DANA, M.D., Courtland, N. Y.

THE following are the salient points in the history of this case, which may be of interest as showing the duration of life after so grave an injury:—

S. C. P., farmer, aged 33 years, in robust health, was lying at 10 o'clock P. M., Oct. 16th, 1875, on a bed, laid on the floor of his house. He was aroused by the breaking in of a window at the foot of his bed, and when in the act of rising he received a wound from a rifle shot, directed from the broken window. The ball penetrated the right side, between the

8th and 9th ribs, about four inches below the posterior axillary border. The usual shock and hemorrhage followed. Paralysis of sensation and motion resulted in the lower extremities, and that portion of the trunk below the site of the wound. In about two weeks *bed-sores* began to develop, which eventually laid bare the sacrum, both ilia and both os femora, to nearly their whole extent. Death ensued on February 7th, 1876, 113 days after the injury.

With the assistance of Dr. J. W. Hughes, of this place, I made an autopsy twelve hours after death. Body much emaciated; usual cadaveric rigidity. There were circumscribed softening and enlargement of the right posterior border of the liver; the entire weight of the organ was $4\frac{3}{4}$ lbs.

There was a fistulous track extending transversely across the lower border of the inferior lobe of the right lung, in the direction of the spine, but was closed for about three-fourths of an inch from the surface next the spine.

The spinal column showed no traces of having been penetrated by a foreign body, but on making a longitudinal section of the lower dorsal vertebra, an irregularly flattened leaden missile was found at the site of the 11th dorsal vertebra, on the left side of the spinal canal, and adherent to the membranes of the cord.

The spinal cord was thoroughly softened and disintegrated below the lesion described.

ART. XIX.—*Case of Natural Catalepsy.* By THOMAS H. STREETS, M.D., Passed Assistant Surgeon, U. S. N.

THE following history is given, not so much to prove that cases of natural catalepsy still occur, as to reflect some light upon the origin of the disease. "The most common exciting cause is supposed to be strong mental emotion, and this may be either acute, or operating through a number of years," says Dr. T. K. Chambers. In this case the cause was evidently not emotional; it had a distinct history, and could be traced back to a very probable origin.

Thomas Lakin, seaman, aged 42 years, and a native of England, was shipped on board the U. S. steamer "Narragansett," September, 1874, at Mare Island Navy Yard, California. He was submitted to a rigid physical examination before shipment, and was pronounced sound and in robust health. He was five feet and five inches high, and weighed about 160 pounds. Complexion fair; hair dark brown and turning gray. He certified in the presence of witnesses that he had no disease concealed or likely to be inherited; an extended after-acquaintance led me to believe that this statement was true, as far as the patient's own knowledge extended. He was always remarked for his retiring disposition. He had been on the ship but a very few days when his actions were noticed as being a little peculiar, and I was requested to observe him, so as to form an opinion in regard to his mental condition. These, however, soon

ceased to attract attention, and we came to regard them as the effects of a recent debauch.

But he still continued very reticent; he never had much to say to others, and did not cultivate acquaintances like the rest; yet he was liked by all, on account of his industry and willingness to always "lend a hand" when anything was being done. On two separate occasions he jumped overboard and rescued two of his shipmates from drowning, and displayed a great deal of coolness and bravery both times. I mention this to show that the man had not one of those excitable, emotional dispositions such as would predispose him to an attack of catalepsy of this origin. At all the times when the attacks occurred he was engaged in some monotonous duty entirely free from excitement. So much for the disposition of the patient.

Previous to shipping in the government service, he had been employed on a steamboat on the bay of San Francisco. While there an accident occurred, which very probably had something to do in giving rise to his trouble; a boiler explosion took place, and the boat was blown in pieces. He stated that he received no injury at all from the explosion, that he was not struck by any of the flying missiles, nor scalded by the steam, but that the only inconvenience that resulted to him in consequence of the accident was to find himself projected into the water by the force of the explosion.

Some time after this occurrence, I do not remember the exact time, but somewhat less than two months if my memory serves me rightly, he began to experience a prickling sensation, a sense of formication, in the region of the occiput.

It was not until after his enlistment in the service of the government, more than a year after the date of the explosion, that he became subject to the fits of unconsciousness. The first attack occurred while he was away from the ship, and while he was on duty in a small boat taking soundings. The account of the attack came to me from the officer who was with him at the time. It was the patient's duty to heave the lead. The officer noticed that he was neglecting his business, and spoke to him in consequence, but received no response; nor did he seem to pay any attention to what was said to him. He was in the attitude which he had assumed in the act of heaving the lead—the left foot planted in advance; the body leaning slightly forward; the right arm extended, and the line held in the left hand. The fingers were partially flexed, and the sounding line was paying out through them in this half-closed condition. The eyes were not set and staring, as is the case in epilepsy; but they were moving about in a kind of wandering gaze, as in one lost in thought, with the mind away off. So much like his natural self did he appear, that his officer again spoke to him, and this time rather harshly, under the impression that he was disregarding his orders intentionally. He

remained standing in this posture for two or three minutes, and maintained his equilibrium, and the boat was in no wise perfectly steady at the time. The whole duration of the trance was about five minutes.

After this he had a number of attacks, but none of them were longer in duration than the first; sometimes they lasted no longer than one or two minutes. Most of them occurred while he was away from the ship, engaged in the same work that I have mentioned above. They did not incapacitate him for duty, but some apprehension was felt lest he fall overboard, and for this reason he was closely watched.

The only premonition he ever had of the approach of an attack was a sense of suffocation, or an inability to breathe; he felt as if the mere effort to breathe would kill him. This did not always precede an attack; he experienced the sensation but once just before lapsing into unconsciousness; generally they came on without any warning whatever. Once he felt sick at the stomach immediately after he recovered consciousness; but as a rule they left him as well as they found him, and he would take up his work just where he had left off, as if nothing at all had happened. No symptoms of nervous derangement were noticeable in the case.

He had several attacks of this character, but none of them were so well marked as the first. Most writers on nervous diseases agree as to the mutual convertibility of catalepsy and epilepsy, and the subsequent history of this case is a further proof of the truth of this statement, and it well illustrates the close relationship there is between them. At first, as I have stated, the attacks were decidedly cataleptic in their nature; but as the disease progressed, they assumed more and more an epileptic character, and before he passed out of my care entirely the catalepsy had become converted into well-marked epilepsy.

The patient had been granted forty-eight hours' liberty on shore, and during that time he had partaken rather freely of alcoholic liquors; but he was not in the state called drunk. He reported himself on board the ship promptly at the expiration of his leave of absence, and he had been aboard but a very short while when I was called upon to see him in a fit. The loss of consciousness in this instance was accompanied by a complete loss of muscular control, and he had fallen to the deck. The face had a livid, cyanosed appearance, and the eyes were fixed and staring; but there were no convulsive movements of the muscles, nor foaming at the mouth. The manner of recovery was also similar to that observed in the cases of "*petit mal*" of the French; he presented the same dazed, confused appearance, like one who has been suddenly awakened from a sound sleep. This attack approached nearer the epileptic form than any he had had before. It occurred about six months after the manifestation of the first morbid symptoms. There was no history of epilepsy in his family that I could learn.

At this stage the case passed out of my care and sight entirely, in consequence of my being ordered to duty elsewhere.

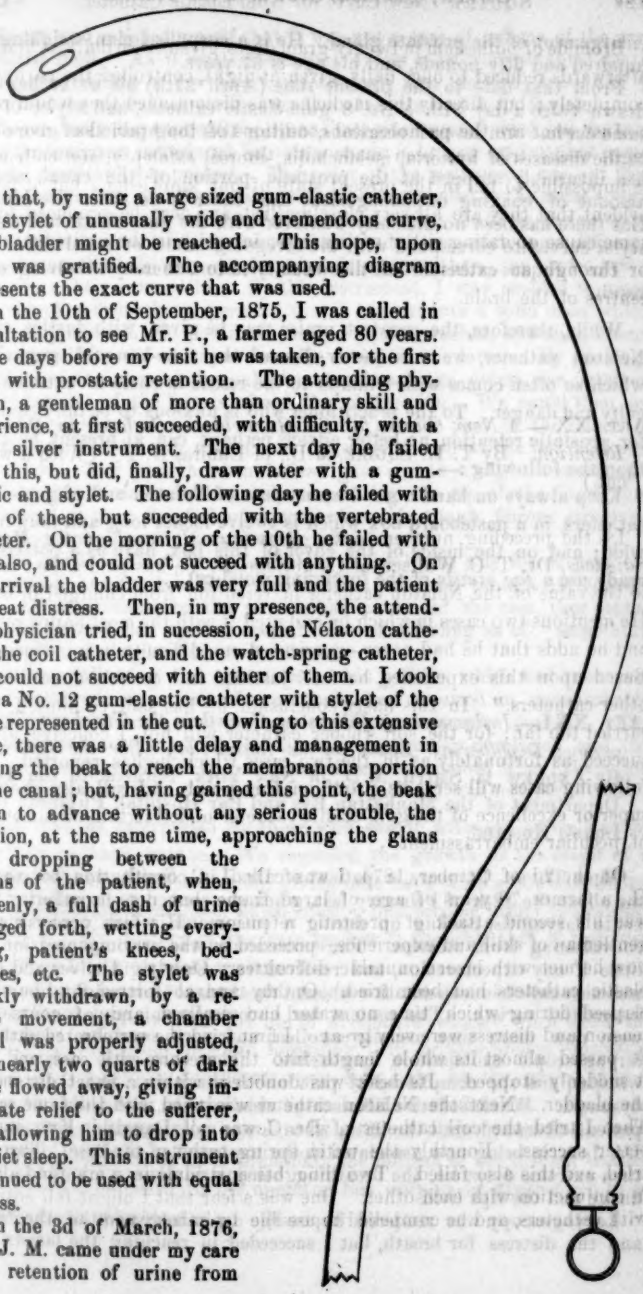
Bromide of potassium in twenty-grain doses, given twice daily, at first, and afterwards reduced to once daily, given at night, controlled the paroxysms completely; but directly this medicine was discontinued they would recur.

Just what are the pathological conditions of the brain that give origin to the diseases of hysteria, melancholia, chorea, catalepsy, and epilepsy, it is impossible to tell in the present state of our knowledge; but it is very evident that they are all very closely allied, and may be produced by the same cause operating either with greater intensity in the individual cases, or through an extension of the primary lesion, thereby involving other centres of the brain.

ART. XX.—*A New Curve for the Gum-elastic Catheter in Prostatic Retention.* By T. H. SQUIRE, M.D., of Elmira, N. Y. (With a wood-cut.)

IN the preceding number of the *American Journal of the Medical Sciences*, Dr. T. C. Wallace, of Cambridge, N. Y., has paid a just tribute to the value of the Nélaton catheter in retention from enlarged prostate. He mentions two cases in which he had used it with the most happy results, and he adds that he had never experienced any difficulty in introducing it. Based upon this experience, he feels justified in "entirely discarding all other catheters." In this hasty conclusion he has suffered himself to be carried too far; for the soft rubber catheter will not, I conceive, always succeed as fortunately as in the two cases which he has reported. The following cases will serve as proof on this point, and will also show the superior excellence of the gum-elastic catheter under certain circumstances of peculiar embarrassment.

On the 2d of October, 1874, I was called, in consultation, to see Mr. H., a farmer 70 years of age, of large frame, but not corpulent. This was his second attack of prostatic retention. His family physician, a gentleman of skill and experience, succeeded on the previous occasion, but now he met with insurmountable difficulties. Only rigid silver and gum-elastic catheters had been tried. On my arrival forty-eight hours had elapsed during which time no water had escaped, and, of course, the tension and distress were very great. I first tried the vertebrated catheter. It passed almost its whole length into the urethra with ease, and then it suddenly stopped. Its beak was doubtless within a short distance of the bladder. Next the Nélaton catheter was tried with the same result. Then I tried the coil catheter of Dr. Cowan, of Danville, Ky., and no better success. Fourthly the watch-spring catheter of Dr. Cowan was tried, and this also failed. Two thoughts now came into my mind almost in conjunction with each other. One was a fear that I might fail entirely, with catheters, and be compelled to use the aspirator; and the other was a



hope that, by using a large sized gum-elastic catheter, with stylet of unusually wide and tremendous curve, the bladder might be reached. This hope, upon trial, was gratified. The accompanying diagram represents the exact curve that was used.

On the 10th of September, 1875, I was called in consultation to see Mr. P., a farmer aged 80 years. Three days before my visit he was taken, for the first time, with prostatic retention. The attending physician, a gentleman of more than ordinary skill and experience, at first succeeded, with difficulty, with a rigid silver instrument. The next day he failed with this, but did, finally, draw water with a gum-elastic and stylet. The following day he failed with both of these, but succeeded with the vertebrated catheter. On the morning of the 10th he failed with this also, and could not succeed with anything. On my arrival the bladder was very full and the patient in great distress. Then, in my presence, the attending physician tried, in succession, the Nélaton catheter, the coil catheter, and the watch-spring catheter, and could not succeed with either of them. I took then a No. 12 gum-elastic catheter with stylet of the curve represented in the cut. Owing to this extensive curve, there was a little delay and management in causing the beak to reach the membranous portion of the canal; but, having gained this point, the beak began to advance without any serious trouble, the pavilion, at the same time, approaching the glans and dropping between the thighs of the patient, when, suddenly, a full dash of urine plunged forth, wetting everything, patient's knees, bedclothes, etc. The stylet was quickly withdrawn, by a reverse movement, a chamber vessel was properly adjusted, and nearly two quarts of dark urine flowed away, giving immediate relief to the sufferer, and allowing him to drop into a quiet sleep. This instrument continued to be used with equal success.

On the 3d of March, 1876, Mr. J. M. came under my care with retention of urine from

enlargement of the prostate gland. He is a corpulent man, weighing two hundred and fifty pounds, and his age is 67 years.

From that date to the present time (April 29th) his water has been drawn twice a day with a No. 8 gum-elastic catheter, and stylet of this same curve. On several occasions, during this long period of more than eight weeks, trial has been made with the soft rubber instrument, but it has invariably stopped at the prostatic portion of the canal, and no amount of coaxing or management can cause it to enter the bladder. But there has been no difficulty whatever with the gum-elastic and slender stylet curved to correspond with the foregoing model or wood-cut.

The "Jaques catheter" has also been tried in this case with unsuccessful result.

While, therefore, the greatest praise may be given, with justice, to the Nélaton catheter, we must never discard the time-honored gum-elastic which so often comes with triumph to the rescue in cases of extreme difficulty and danger. To the practitioner who is anxious to be fully equipped for prostatic retention, no better advice, perhaps, can, at present, be given, than the following :—

Keep always on hand a good assortment of Nélaton and of gum-elastic catheters, in a pasteboard box which is twelve inches long and four inches wide; and on the inside of the cover of this box, have as a pattern for ready use a *fac simile* of the foregoing wood-cut.

ART. XXI.—*Inflammatory Fibrinous Growth in the Trachea; Tracheotomy; Diphtheria; Death on the fourth day after the Operation.* By ANDREW H. SMITH, M.D., of New York, Surgeon to the Throat Department of the Manhattan Eye and Ear Hospital, Physician to St. Luke's Hospital.

MISS D., æt. 14 years, a patient of Dr. J. C. Smith, was first seen by me about the 12th of February last, when she seemed to be suffering from acute laryngitis, coming on during a pneumonia which occurred while convalescing from measles. The pneumonia was accompanied by very little if any expectoration, and resolved very slowly. Dr. Janvrin, who was also called in consultation about this time, considered it to be of the interstitial variety. The patient had chronically enlarged tonsils, which were now more than usually swollen and very sensitive, rendering a laryngoscopic examination impossible. The voice was reduced to a whisper, and she complained of pain about the larynx, but there was no dyspnœa. Warm sedative inhalations were advised, and I did not see the patient afterward until the 28th, when I was called again in consultation, Dr. Janvrin being now associated in the treatment of the case. There was then extreme dyspnœa, the breathing being stridulous, while the face was dusky and the lips livid.

Laryngoscopy was rendered impossible by enlargement of the tonsils and the distress for breath, but I succeeded in reaching the larynx with

my finger, and satisfied myself that it was not a case of œdema of the ary-epiglottic folds. As it was evident that unless relief were obtained death must ensue within a few hours, tracheotomy was decided upon, and I performed the operation, assisted by Drs. Janvrin and J. C. Smith.

The trachea being exposed, the upper three rings were divided, but the moment the knife was introduced for this purpose it became evident that some unusual condition was present. The point of the instrument was not free within the trachea, and the incision was not accompanied by the usual sound of air entering through the wound. On withdrawing the knife, the margins of the incision remained in close contact, and it was with some difficulty that the tracheal dilator was introduced between them, the blades being bulbous at their extremities. By this instrument, I was enabled to open the wound sufficiently to perceive that I had cut into a solid mass which was firmly adherent to the inner surface of the trachea, and that, therefore, the incision did not open into the cavity of the latter. By prolonging the incision upward through the cricoid cartilage, access was obtained to the interior of the larynx above the obstruction. We could then see that this consisted of a mass occupying the greater part of the lumen of the trachea, and leaving only a small passage for air at the left and posterior side. The growth when incised gave rise to a slight hemorrhage, showing that it was vascular, and, on pressing the tip of the finger into the wound, it gave the feel of a somewhat soft, tough, fibrous structure, reminding one of pretty firm pleuritic adhesions.

With considerable difficulty a child's tracheal tube was forced past the obstruction, and the breathing was rendered sufficient, though not entirely free. On mentioning to the parents the nature of the case, they stated that the patient had spoken several times of a feeling as of "something drawing" in the right side of the throat.

The day following the operation a thin pellicle, which had been previously observed upon one of the tonsils, had assumed an unmistakably diphtheritic character, and the whole pharynx was soon invaded. The constitutional symptoms of diphtheria were speedily developed, and the patient, already weakened by protracted illness, succumbed from exhaustion on the fourth day after the operation. An autopsy was not permitted.

This case, as interpreted by those who saw it with me, as well as by myself, is, perhaps, unique. We regarded the growth as the result of a local circumscribed inflammation, giving rise to a plastic effusion underneath the mucous membrane, which effusion had become pretty thoroughly organized. The history of the case renders it probable that it had been as much as thirty days in forming.

In this connection, I would call attention to the great advantage which may often be derived from the use of a concave reflector worn upon the forehead in operations like the foregoing. In private houses especially, we are almost always dependent upon side light, be the source what it may, and the amount of available light is often very deficient. By means of the mirror, the light can not only be rendered vertical, but at the same time be concentrated so as to illuminate the bottom of the deepest wound. The aid thus afforded to the operator has only to be experienced to be regarded as invaluable.

ART. XXII.—*Diffused Popliteal Aneurism; Syme's Operation; Secondary Hemorrhage; Ligature of Femoral Artery; Tetanus; Recovery.* Operations by C. B. PORTER, M.D., Surg. Mass. General Hosp., Subsequent care and Report by Assistant Surgeon S. Q. ROBINSON, U. S. M. H. S.

JOHN L., aged 36, a Prussian by birth, with a probable syphilitic history, was admitted to the U. S. Mariner Hospital at Chelsea, Mass., April 7th, 1875, for Guinea worm. The entire crew of his vessel, a Gold Coast trader, were sufferers from this parasite. The period of incubation in all the cases was about ten months.

June 10. The last piece of worm was removed, completing a total length of 14 inches.

14*th*. Patient called attention to a small, deep, indistinctly defined induration in the lower and inner part of the thigh under the vastus internus muscle, the seat of considerable pain. It was supposed to be of inflammatory origin, and treated accordingly.

July 30. The swelling had increased in size and the skin had become tense and reddened.

31*st*. An exploratory incision showed the trouble to be a rupture of the popliteal artery. Dr. C. B. Porter, who was called in consultation, cut down upon the artery and ligated it *in situ* by Syme's operation, tying both ends. At the proximal end, the artery was readily separated from the surrounding parts and the ligature applied, but at the distal end inflammation had so glued the tissues together, that isolation of the artery was impracticable, and a curved needle with ligature was passed. The sheath was necessarily included in the ligature, as it could not be separated from the vessel. The opening in the artery was two inches long, involving more than half its circumference, and situated just below Hunter's canal. There was nothing like a sac. The cavity, containing a pint or more of clotted blood, was formed by the separation of the muscles.

It was a matter of much doubt if the patient would rally after the operation in spite of repeated rectal injections of brandy. Heaters were applied, and, at the suggestion of Dr. Porter, the limbs were kept elevated above the head until the feeble and thready pulse of 140 became slower and stronger. For twenty-four hours the patient was in a semi-unconscious condition, with incessant vomiting and purging, which did not entirely cease until four days later.

August 10. A secondary hemorrhage occurred, with the loss perhaps of ℥x of blood. A strap tourniquet which had been kept on, partly screwed up, in anticipation of this accident, had been removed eight hours before at the urgent request of the patient. The bleeding was checked by the fingers of the patient himself until assistance reached him. The femoral was tied by Dr. Porter slightly below the apex of Scarpa's triangle, in order to leave room for future ligation in case of need. About ℥ss of blood was lost. The wound healed by first intention, and the patient quickly rallied.

11*th*. Patient complained of stiffness of the jaws and difficulty in swallowing. Two days later, there were general tetanic spasms. The lower wound was then syringed out daily with a solution of chloral hydrate (grs. xv–aq. ℥j). It is worthy of note that after the artery was tied

above, the discharge, previously free, diminished so as to hardly moisten the dressings, although the process of repair went on unchecked. Chloral grs. xv, and potass. brom. grs. l, were administered by the rectum with a frequency regulated by the severity of the spasms, but not oftener than once in two hours. Occasional subcutaneous injections of morphia. The temperature ranged from 99½° F. to 103½° F.

25th. There was some mental aberration due to the chloral. The patient passed his urine and feces in bed. The spasms were much less severe.

September 5. No spasms, though the pain in the wound and along the thigh, which had been a prominent symptom from the outset, was still troublesome.

October 16. An attempt, made under ether, to straighten the leg, which was immovably flexed at a right angle, failed. The muscles of the thigh still seemed to be in a state of spasmodic contraction. Extension, which was then applied by weight and pulley, could only be borne at first for an hour daily, but the weight and time were both gradually increased. Patient much debilitated and very anæmic.

March 4, 1876. Patient was discharged in fair condition, with the leg almost straight. Tenotomy of the hamstring tendons was declined. The tibial pulse could not be felt.

May 1. Patient has been working as bartender in Boston since his discharge. Leg quite straight. Has no trouble of any sort.

ART. XXIII.—*On the Subcutaneous Injections of Ergotine.*

By R. CROCKETT, M.D., Wytheville, Va.

Soon after the number of the *American Journal of the Medical Sciences* for January, 1875, was received by me, containing the interesting account of Prof. Da Costa's "Cases of Splenic Lukæmia and their treatment with Hypodermic Injections of Ergotine; with remarks on the Hypodermic use of Ergotine and Iodine in Glandular Enlargements," I had under treatment a case of splenic lukæmia, which I will briefly report:—

February 3, 1875, Mary S. (colored), 48 years of age, had been sick for several months, but could not give an intelligent account of her condition, or how she had been treated.

I found her spleen much enlarged, displaced, measuring eight inches in length, and hanging in a line nearly vertical in the direction of the left pubic bone, width five inches, approaching the linea alba in its descent, much increased in thickness, gradually thinning towards its edges; about the centre, near the linea alba, I could detect a notch in which my largest finger would lay, well defined, movable; percussion and manipulation generally gave slight pain; it became thinner at its lower edge, and semilunar in shape; gave much inconvenience from its weight when lying on the right side. Below and nearly connected with the spleen, it was associated with the diffuse development of fatty matter in the subcutaneous cellular tissue in the lower part of the abdomen, hanging in a semilunar

fold over the pubic bone about three inches long, and one and a half thick in its centre.

Percussion and auscultation of the chest disclosed slight cardiac derangement; heart acting feebly; no cardiac murmur discoverable; second sound rather indistinct; pulse 102, small and compressible; respiration 22. Peritoneal sac somewhat distended with serum, and also slight effusion into cellular tissue of lower extremities; obstinate constipation; little or no appetite. Urine gave decided indications of albumen.

Diagnosed splenic leukæmia complicated with slight cardiac derangement.

I shall waive the discussion of the pathology of this disease, as the contribution of Dr. Da Costa in the number of the journal alluded to, is so full and admirable in all that is known at present in relation to leucocythemia, and content myself with saying that I was deprived of making a satisfactory examination of the blood, inasmuch as the microscope to which I had access was too deficient in magnifying power to give satisfactory results as to the red and white globules of the blood. My object mainly is to give the result and success of the treatment; premising that in this locality, it is a disease rarely met with, having met only with a few cases, in a practice of now upwards of 48 years.

Treatment.—Gave a hypodermic injection of ergotine 4 grains in distilled water and glycerine amounting to 15 minims. Also directed 20 minims of tincture of chloride of iron in sugar and water three times a-day. One quarter of a grain of Clutterbuck's elaterium as often as necessary to move the bowels without inducing purgation. Two injections of ergotine were given hypodermically on alternate days over the region of the tumour. After that they were given subcutaneously in the cellular tissue of the arms. Diet, nutritious, and generous treatment continued until March 20.

After the third hypodermic injection, the spleen was manifestly lessened in size, and continued to subside until this date, when all enlargement had disappeared, then also an entire subsidence of the dropsical condition, (with greater comfort to patient, in all respects); appetite gradually returned and became good; slept well at night.

April 12, condition greatly improved; slight traces of albumen in urine still discoverable; pulse 80 to 84; respiration free.

The fatty development in connective tissue below left pubis, remaining as about at first, I determined to try the effect of hypodermic injections of ergotine into its substance. I am gratified to state that five hypodermic injections on alternate days almost entirely removed it, a very slight induration only remaining.

Another case, now of great interest to me, presented itself during the month of March.

E. S. (bright mulatto), aged 25 years, had her right mammary gland removed in June, 1873, tumour large and indurated. Microscopic examination gave decided indications of malignancy.

I assisted in the removal of the gland; the process of healing was satisfactory.

March, 1875, patient called for advice. Appearance rather sallow, somewhat emaciated.

Upon examination, found that in the process of cicatrization, adhesion had taken place to the pectoralis major muscle, presenting a sulcus or furrow that the largest finger could be laid in the entire length of the

primary incision; made by the diffuse development of fatty matter in the connective tissue both above and below the cicatrix of about equal size, had recently been gradually enlarging.

About an inch below the centre of the margin (of the left mammary gland), I found an indurated tumour, of circumference of a Mexican dollar, half an inch thick, movable and decidedly painful to the touch; some time had elapsed since she first discovered it, but could not say accurately how long.

Treatment.—Gave eight hypodermic injections of ergotine, 4 grains each, at intervals of three days; introducing the needle each time into the body of the tumour, about two-thirds through it, each time retracting the needle as the piston was forced up. For 24 hours after the injection the tumour was decidedly more sensitive, tender, larger, and harder; it would then partially subside before the next injection.

After the eighth injection, tumour decidedly enlarged, much harder, somewhat hotter and more painful. Soon afterwards it began to lessen, pain and soreness subsiding, and the tumour finally disappeared entirely. The development of fatty matter in the connective tissue bordering the cicatrix also disappeared.

June 26, she called at my office to be re-examined; found tumour entirely gone.

Careful manipulation of the parts disclosed no soreness or resulting adhesion to intercostal spaces from the use of the hypodermic injections.

October 27. General health good; no indications of tumour returning; can do all the work of a housemaid.

Miss G., aged 14 years, consulted me concerning a disfiguring bronchocele. Gave 13 hypodermic injections of ergotine, 4 grains each, from the 25th of May to June 30, 1875, in the arms.

Enlargement of gland entirely removed, scarcely a trace of it visible. Both internal and external use of iodine had utterly failed in this case. Remains well to date.

We must not be too sanguine from the result of the effects of hypodermic injections of ergotine in a single case. But as the mission of the physician is to alleviate when he cannot cure, I was induced in the case of E. S. to give the possibility of benefit from the hypodermic use of ergotine, and I have the consolation to know that life has at least been prolonged if not saved. Result of this case will be reported hereafter.

I now mainly rely upon hypodermic injections of ergotine, in pulmonary, gastric, and uterine hemorrhages. In the latter my experience is especially large, seeing much of all the morbid conditions of that organ.

In the conditions indicated, I beg leave to suggest a fair trial of the hypodermic injection of ergotine, the importance of the purity of which cannot be overestimated.

ART. XXIV.—*Case of Movable, or "Floating" Kidney.* By G. W. H. KEMPER, M.D., of Muncie, Indiana.

MAY 1, 1876, I was called to see Mrs. H., aged twenty-six, then advanced to the third month of her second pregnancy. The first labour, which was tedious, occurred on the 26th day of December, 1874. From her I gathered the following history: About the middle of March last she first noticed a "lump" in her right side, attended with a motion, which led her to believe that she was several months advanced in pregnancy and had quickened. These sensations frequently recurred, but, finally, the fact of the tumour being isolated and located high up in the abdomen, created a doubt in her mind, and my advice was asked. She is a delicate woman; the abdominal walls are so exceedingly thin that I had not the least trouble in making a most satisfactory examination. When lying upon her back I discovered in the right hypochondrium, immediately beneath the last true rib, a tumour, in size and shape corresponding to the human kidney. This tumour was driven downward by each full inspiration, and with my hand I could move it still further downward, even below the umbilicus. It was also quite movable either to the right or left to an extent of several inches. Furthermore, I was able to grasp the body in my fingers through the abdominal walls and lift it upward.

In addition to the movements referred to above, she said the tumour gave rise to a dragging sensation when upon her feet, as well as a sickening or uneasy sensation when I grasped it in my hand. Roberts (*Urinary and Renal Diseases*, 1st ed., p. 502) refers to a similar case, where a woman attributed these peculiar movements of a displaced kidney to the movements of a child in the womb. That it was not due to fœtal movements in my case is evident. She last menstruated February 1st, making just three calendar months to the day I saw her, and the fundus of the uterus barely rose above the pubes, thus indicating that the term of pregnancy was hardly sufficiently advanced for quickening at the date I saw her, much less when she first felt the movements, namely, about the middle of March. The same author mentions epigastric pulsation as a complication attending a patient. The same phenomenon, whether a symptom or merely a coincidence I know not, was present in my own case.

The exciting cause in this case is unknown. Labour is regarded as a common exciting cause of this affection, but the long interval of time which elapsed from the date of the labour until the appearance of the lesion, seems to exclude that factor in this case. According to Roberts, movable kidney is much more common in women than men. Of 51 cases he collected, 46 were women, and but 5 men. He also found that of 46 carefully recorded cases, in 28 the right kidney alone was movable, in 8 the left kidney alone was movable, and in 10 both kidneys were movable.

(Article XXV.)

A CENTURY OF AMERICAN MEDICINE.
1776—1876.

III.
OBSTETRICS AND GYNÆCOLOGY.

By T. Gaillard Thomas, M.D., Professor of Obstetrics and Diseases of Women and Children in the College of Physicians and Surgeons, New York.[1]

The progress of philosophy, theology, politics, and science has never, in the history of the world, been marked by steady, monotonous, and gradual advancement. For long periods it has appeared to be so, but now and then, once in a century perhaps, each of these departments has felt the impetus imparted to it by the influence of some rare and stupendous genius, which, in a brief period, has effected more than years of patient toil had before accomplished. Some man, towering in intellect above his fellows, ordained by nature to lead into unexplored regions, and to dominate new fields of thought, has here and there made his appearance, and marked his epoch as an era. In more modern times philosophy has felt the influence of Bacon, theology that of Luther, science that of Newton, and politics that of Napoleon.

So has it been with the progress of each of the departments of the healing art. Surgery, medicine, chemistry, anatomy, physiology, and the collateral science of botany, has each in turn, since the revival of learning, felt the propulsive influence of Paré, Boerhaave, Berzelius, Morgagni, Harvey, and Linnæus.

Such an impetus was given to obstetrics late in the eighteenth century. Until that time this department was chiefly allotted to women, and the few male practitioners who devoted themselves to it occupied a lower professional position than those engaged in medicine and surgery. He who was to establish the dignity of obstetrics, to elevate it to the position of a science, and to open the way to its rapid progress, appeared in the person of William Hunter, whose work upon the gravid uterus was published in 1774. It is true that the writings of Smellie and Levret, great contributions to obstetrics as an art, preceded it; but it is equally true that Hunter laid the corner-stone of the science in giving to the profession a work which may be said to have been to obstetrics what that of Euclid was to mathematics. It was the forerunner of the subsequent eminently valuable labours of Naeglé, and the inspiration of those of Denman and his school.

Two years before the foundation of this republic the new era of modern obstetrics was established, which has now lasted for a century. Its influence, immediately and decidedly felt in Europe, gave little evidence of its existence here, however, for the next quarter of a century, probably,

[1] The author desires to acknowledge his obligations to Dr. S. Beach Jones, Jr., for valuable assistance in the preparation of this report.

in great part, for the following reasons. Its inauguration found on this continent an infant nation engaged in a struggle for independence with the formidable power of Great Britain, which taxed every resource for the following seven years: sparsely settled, without financial resources, and unprovided with the materials for sustaining a lengthy war, it became necessary for self-protection that the private resources, the individual efforts, the undivided energies of its people should be concentrated upon one single, sacred object. From this it resulted that until the year 1783 attention was entirely abstracted from the pursuits of peace—agriculture, manufacture, science, art, were all neglected.

The establishment of peace found the country entirely unprepared at once to resume those pursuits to which it had so long been a stranger. The people were impoverished, the land was unproductive, the credit of the country was not yet established, and its exchequer was empty. The immediate material wants of the inhabitants claimed their almost undivided attention, and it is not a matter of surprise that for some time we find few records of national or private efforts put forth in behalf of science in this field or in any other. As an art, practised chiefly by midwives, obstetrics was a vigorous plant, deep-rooted and strong; as a science, a delicate shoot, which feebly struggled with adverse circumstances for life; while the very seed of the sister branch of gynæcology may be said to have been unsowed.

In spite of the prejudices of the community, at an early period even in colonial times a very small number of physicians, recognizing the claims of obstetrics, devoted themselves to its practice. In 1753, according to Bartlett,[1] Dr. James Lloyd, a pupil of Smellie and Hunter, settled in Boston, and in the following year systematically began the practice of midwifery. He was the first practitioner so devoting himself of whom records can be found. In 1762 the same course was pursued by Dr. William Shippen, Jr., of Philadelphia; and these two pioneers in obstetric science began the great work here which Smellie, Hunter, and others were striving for abroad, of placing this important branch upon a level with the sister departments of medicine and surgery. The success of their efforts may be judged by the facts that in 1762 Dr. Shippen delivered a course upon obstetrics; that in 1767 Dr. J. V. B. Tennant was appointed to a special chair on this subject in New York; and that, thus introduced as a distinct department into the curriculum, the subject has to the present day been recognized as one of paramount importance and dignity.

During this period essays were written by Orne, Osgood, and Holyoke[2] upon pudendal hematocele, the Sigaultian operation, rupture of the uterus, retroversion of the gravid uterus, extra-uterine pregnancy, and descriptive of cases in practice, evidencing an effort in the right direction.

In 1791[3] the operation of gastrotomy for removal of an extra-uterine fœtus was successfully performed by William Baynham upon the wife of a Virginia planter. The same gentleman[4] operated with similar success upon a negro slave in 1799. Before Baynham's first case the operation had been only once performed in this country, namely, in colonial times,

[1] Med. Communication and Dissertations of Mass. Med. Soc., vol. ii. p. 235.
[2] Outline History of Gynæcology in New England, by H. R. Storer.
[3] N. Y. Med. and Philos. Journ., Jan. 1809, vol. i. p. 161.
[4] Ibid., Jan. 1809, vol. i. p. 165.

by John Bard, of New York, in 1759.[1] Subsequently it was repeated by Wishart[2] and Alex. H. Stevens.[3]

The dawn of the nineteenth century found the United States ripe for progress and advancement, and while it was yet young the lamp of medical science began to burn with a brightness which it had not shown before, and which promised well for the future. We will not stop to inquire whether this improvement in progress was due to the fact that a nation, fatigued, exhausted, and impoverished by a severe conflict, had now had time for recuperation; or whether, in the language of the learned Beck,[4] this was due to the "influence which our peculiar form of government exerts over the character and progress of science." Let the sequel of this sketch prove, too, whether there be any truth in his assertion that "it is unquestionably true that our medicine participates largely of that spirit of independence which characterizes the civil and political institutions of our country." However much patriotic zeal may prompt an inclination to accept this view, let no American ignore the fact already stated, that the way to progress in obstetrics was pointed out by the great Englishman, Hunter; and that in the very first year of the new century a similar impulse was given to gynæcology by the eminent Frenchman, Récamier.

The greatest advances which have been made in the science and art of medicine in modern times have all been due to the subordination of facts to physical investigation and demonstration. The prodigious strides made in pathological anatomy during the time intervening between Morgagni and Virchow have been due to the microscope. The great modern advance which has been made in the diagnosis, prognosis, and treatment of cardiac and pulmonary affections, has resulted from the discovery of auscultation and percussion. Diseases of the deep structures of the eye have been comprehended through the instrumentality of the ophthalmoscope. The laryngoscope has brought order out of confusion in affections of the larynx; and clinical thermometry has done more than anything else in our century to remove diagnosis and prognosis from the domain of speculation, and place them upon a scientific basis. At the commencement of the present century such an influence was evoked in behalf of gynæcology in the speculum uteri, with which Récamier, in 1801, began the study of the diseases of female sexual organs.

The history of few instruments which have come down to us from ancient times can be so clearly traced as this. Directly back through the ages which intervene between our civilization and that of the Greeks, its existence can be detected; and yet its merits and advantages had been gradually so lost sight of that Récamier may be said to have re-discovered it at the time just mentioned. The labours of this man, more than those of any other in modern times, have advanced gynæcology, and given to it its present position of dignity and usefulness.

The duty of presenting a summary of America's contribution to obstetrics and gynæcology from the time of Hunter and Récamier to our own, is truly an arduous one. So extensive is the literature which has been contributed to these subjects that even a faithful examination of it is difficult. Much more difficult is the task of separating the wheat from

[1] Parry on Extra-Uterine Pregnancy, p. 224.
[2] Phil. Journ. of Med. and Phys. Science, 1825, N. S., vol. i. p. 129.
[3] N. Y. Journ. Med., May, 1846, p. 341.
[4] Historical Sketch of the State of Medicine in the American Colonies.

the chaff in the material presenting itself, for, verily, there is a surprising amount of both to be found.

In 1806, Dr. George Clark[1] reported a case of extra-uterine pregnancy, where, the head of the child presenting in the rectum, he passed his entire hand into the bowel, and, seizing the head, extracted it. Some time afterward the body and secundines were spontaneously expelled. In this case the operation proved the practicability of introducing the whole hand into the rectum without doing serious damage to that viscus, and demonstrated the utility of so doing in just such cases as that here recorded. In this course he has since been imitated by Duncan, of Edinburgh, and Janvrin, of New York. Simon's recent advocacy of the procedure, for other purposes, is well known.

The year 1807 was signalized by two important occurrences in American medicine, the introduction of ergot into the materia medica as an oxytoxic, and the publication of the first work on midwifery which appeared in this country. Long before that time ergot had been known, and in Germany, France, and Italy had even been empirically used by midwives as a uterine stimulant. The name of the drug, indeed, in the German tongue is *mutterkorn*. To John Stearns, first president of the N. Y. Academy of Medicine, belongs the credit of demonstrating its oxytoxic effects to the medical profession, and giving it its deserved position as the most reliable and valuable of this class of agents. His first communication, dated Jan. 25, 1807, was written from his residence in Saratoga County to Mr. S. Akerly, and published in the *N. Y. Medical Repository*.[2] This attracted great attention, gave rise to many others of similar character, and very soon obstetrics had at its disposal a most valuable agent, capable of accomplishing a result with almost certainty which none other, discovered either before or since, has been able to effect. Ergot to-day stands unrivalled as an oxytoxic among drugs, and the good which has resulted from its use in post-partum hemorrhage is incalculable.

The first work upon obstetrics which appeared from the pen of a native author was that of Dr. Samuel Bard, of New York. This was published in 1807, and in 1819 had reached the fifth edition. In his preface Bard especially disclaims all originality, and declares that his work is a compend for the use of midwives and practitioners. The style of this work, though quaint, is strikingly simple, and the author appears to have been a careful, conscientious, and conservative practitioner.

"I confess," says he, "not without severe regret, that towards the end of thirty years' practice, I found much less occasion for the use of instruments than I did in the beginning; and I believe we may certainly conclude that the person who, in proportion to the extent of his practice, meets with most frequent occasion for the use of instruments, knows least of the powers of nature, and that he who boasts of his skill and success in their application is a very dangerous man."

It was during this, the first decade of the nineteenth century, that the greatest of all the contributions which the United States has had the good fortune to make to gynæcology, came forth from the then far west; a region from which so great an advance would at that early period have been least expected. This was the performance of ovariotomy by Ephraim McDowell, of Danville, Kentucky. The magnitude and im-

[1] Phila. Med. Museum, 1806, vol. ii. p. 292.
[2] Vol. v., 2d Hexade, p. 308.

portance of the procedure, the obscurity of its originator, and the fact that its practicability had long before been stated by eminent European authorities, all combined to render McDowell an object of distrust and obloquy. Many, both here and abroad, sympathized with the sarcastic expression of the then editor of the *Medico-Chirurgical Review*:[1] "A back settlement of America—Kentucky—has beaten the mother country, nay, Europe itself, with all the boasted surgeons thereof, in the fearful and formidable operation of gastrotomy, with extraction of diseased ovaries." Had this been stated in sober earnest, it would have been a modest and simple expression of what time, after a most searching examination, has proved to be the truth. It was, however, written in the bitterest spirit of sarcasm, the cloven foot of which is soon made apparent by the occurrence of this sentence: "Our skepticism, and we must confess it, is not yet removed."

Upon reflection, with the facts of the case clearly before us, the success of the western surgeon is not a matter of so great surprise. He was no illiterate, inexperienced, and rash adventurer, but a surgeon who had sat in his student days at the feet of John Bell and other eminent men, at that time composing the faculty of medicine at Edinburgh. "Every seminary of learning," says Sir Joshua Reynolds in one of his academical discourses, "is surrounded with an atmosphere of floating knowledge, where every mind may imbibe somewhat congenial to its own original conceptions." In Edinburgh the young American student imbibed some of this floating knowledge, and undoubtedly had the seed sown which afterwards ripened so lustily; for at that very time hints and suggestions as to ovariotomy were often thrown out by his teachers. Returning home, however, he bided his time. Before essaying his great conception he had already achieved a high reputation as a surgeon for lithotomy and hernia, and for fourteen years he cherished and reflected upon the idea of operating for extirpation of an ovarian tumour before an occasion offered for so doing.

It is evidently at variance with all the evidence at our disposal in reference to this discovery, to conclude that it was made by a sudden stroke of genius on the part of its discoverer. It should not be forgotten that what is styled genius is only the power of suddenly drawing deductions from premises slowly, carefully, patiently stowed away in the mind, studiously analyzed, and thoughtfully considered. Sir Isaac Newton expressed this opinion when, being complimented upon his genius, he replied that, "if he had made any discoveries it was owing more to patient attention than to any other talent." In our day metaphysicians are agreed in defining genius as a power of concentrating the mind in prolonged, fixed, and continued attention. Buffon tersely styles it a "protracted patience."

In 1809 the long-wished-for opportunity presented itself to McDowell,[2] and he operated successfully; then again in 1813, and again in 1816; although he did not publish these cases till 1817. What a commentary upon the grand nature of the man was this calm deliberation and hesitancy to rush into print! He had performed an operation never before attempted in the history of the world, and with three successive good results, and yet he did not hasten to blazon it abroad!

A great deal has been said, and very properly said, concerning the

[1] Dr. James Johnson, Med.-Chir. Rev., N. S. vol. v., Oct. 1826, p. 620.
[2] Eclectic Repository and Analytic. Rev., April, 1817, p. 242.

fact that McDowell got the suggestion of ovariotomy from abroad, and only developed it afterwards in his own country. Even had McDowell never lived, America seemed destined to be connected with this great surgical triumph from its inauguration; for in July, 1821, Nathan Smith, then Professor of Surgery in Yale College, performed ovariotomy[1] entirely without the knowledge of the fact that he had been preceded by one of his own countrymen in 1809, and by a German in 1819.

The scope of this paper will not admit of a record of the names of the immediate followers of these surgeons; suffice it to say that before the year 1850 eighteen operators had successfully performed thirty-six operations, with twenty-one recoveries and fifteen deaths.

In England ovariotomy was never performed till 1836; in Germany it was first performed in 1819, and in France in 1844.

It will thus be seen that this operation, remarkable at once for its simplicity and efficiency, did not rapidly advance to a recognized place as one of the resources of surgery, but slowly and painfully overcame the prejudices and doubts of worthy men, and the misrepresentations of detractors. In effecting this result, America by no means stood alone. Nevertheless it was to Americans, the successors of McDowell, that it was in great part due. The names most intimately connected with the work are those of John L. and W. L. Atlee, Dunlap, Peaslee, and Kimball. To the Atlees too much credit in this regard cannot be accorded. Profoundly impressed with the importance and future usefulness of the procedure, they pressed onward in the work of establishing its claims with that dignified indifference to the criticisms of opponents which always characterizes successful innovators. They operated upon all suitable cases, when each venture insured a storm of censure; when every fatal result was cited in evidence of their recklessness; when persistence robbed them of the esteem of many whose good feeling they could not but value.

"On the 17th September, 1843," writes Alexander Dunlap, of Springfield, Ohio, "I performed my first ovariotomy, and carefully wrote out the case for publication, and sent it to a medical journal. They sent it back, with a note, stating that they could not publish the case of such an unjustifiable operation. I threw it into the waste-basket, determined to write no more for medical journals; but, being satisfied that I was right, to continue the operation. From that time, for a number of years, I was looked upon by most of the profession out west as a kind of an Ishmaelite in the regular profession in regard to surgery, and in that operation in particular. . . . I have now operated 106 times for ovariotomy (1876), with 27 deaths and 79 cures." Peaslee operated first in 1850 and Kimball in 1855.

Let it be borne in mind that these operators, with a few others, for a long time, stood almost alone. In those days it was as difficult to find a physician bold enough to sustain the operation as it now is to find one who dares decry it, and the wisest and most eminent surgeons of our country did not hesitate to declare,[2] "that in a few years the measure will be consigned to the oblivion it so richly merits." This, indeed, was a mild expression of disapprobation compared with many others from the best men in our ranks. Let us rather draw the veil over the exhibition of vituperation and personal abuse which disgraced the opposition, and

[1] Am. Med. Recorder, 1822, vol. v. p. 124.
[2] Liston and Mütter's Surgery, 1847, p. 422.

strive to forget that the bigotry and narrow-mindedness which endeavoured to crush the great discovery of Copernicus still lived in our day, to strive against ovariotomy. "Pride," says Sir William Hamilton, "has led men to close their eyes against the most evident truths which were not in harmony with their adopted opinions. It is said that there was not a physician in Europe above the age of forty who would admit Harvey's discovery of the circulation of the blood."

To-day, when ovariotomy is generally accepted as a valuable surgical resource, it is difficult for one to appreciate the reasons for the tardiness with which it overcame European prejudices, and forced its claims upon the notice and confidence of men who have since learned to accord to the procedure its true value. So entirely has this disposition on the part of trans-Atlantic surgeons been now overcome that a very general and, we are forced to say, a very reasonable feeling of surprise has been excited in America at what has seemed to be an inclination to ignore her indisputable rights in the matter.

"Till 1858," says an ovariotomist of Great Britain, as well known for his personal excellence as for his skill and success as an operator, writing as late as 1873, "I could find nothing whatever anywhere to encourage, but everything to deter one from attempting it. Ovariotomy was then, as an operation, simply nowhere."[1] This was a mistake. Ovariotomy since 1809 was somewhere; namely, in the land in which McDowell had performed thirteen operations with eight undoubted successes before 1830; W. L. Atlee[2] fourteen operations prior to 1851; J. L. Atlee[3] double ovariotomy in 1843; and where over twenty-five other surgeons had removed ovarian tumours each one or more times prior to the year in which this eminent commentator began to discover the whereabouts of the procedure. The only extraordinary thing connected with the matter is that so important an operation could for almost an entire half century have so completely concealed its huge proportions from the ken of so acute an observer, and that too in a country teeming with medical periodicals and a nation not prone to hide its light under a bushel.

England, France, and Germany have each in turn been claimants of an operation, which after the most critical and thorough search stands fully accredited to America. "In faith, 'twas strange, 'twas passing strange," and yet 'twas true, that a surgeon of the Western wilds, with what Piorry once styled "une audace Americaine," stole a march upon the polished savans of the old world, as if in the silent watches of the night.

It is difficult to estimate the amount of good which this operation has bestowed upon humanity! Practised to-day in every civilized country in the world, yielding the statistics of seventy to seventy-five per cent. of recoveries, and daily being improved in its various steps, it may well be regarded as one of the greatest surgical triumphs of the century. "It may be shown," says Peaslee, "that in the United States and Great Britain alone, ovariotomy has, within the last thirty years, directly contributed more than thirty thousand years of active life to woman, all of which would have been lost had ovariotomy never been performed." To have done this even for one generation alone is glory enough for one mortal, and his country, apparently in recognition of this fact, leaves his

[1] Mr. Thos. Keith, Brit. Med. Journ., Dec. 20, p. 739.
[2] Am. Journ. Med. Sci., N. S., vol. xxix. p. 387.
[3] Ibid., N. S., vol. vii. p. 44.

grave without a mark, and his memory to be preserved only in the hearts of the thousands of grateful women whom his genius has saved from death.

Should the day ever arrive in which the memory of McDowell shall be honoured by a monument, surely no one will deny to it the right to that inscription which declares upon the statue of Washington; he "has rendered his name dear to his fellow-citizens, and given the world an immortal example of true glory."

In the year 1816,[1] John King, of Edisto Island, South Carolina, performed one of the most remarkable operations for removal of an extra-uterine fœtus ever placed on record. The case was one of abdominal pregnancy; the head presented in the pelvis, outside of the vagina; he cut through the walls of the latter, and applying the forceps, while abdominal pressure was exerted upon the child from above, had the rare good fortune to save both mother and child.

Towards the close of the eighteenth century there arose a man whose genius left its impress upon American obstetrics more decidedly than that of any other has done before or since. Decided in opinion, vigorous in expression, terse in argument, and trenchant in style, he did a great deal towards elevating the department to which he devoted himself. William Potts Dewees was born in 1768 and died in 1841, after a long and laborious professional career, during which he exerted a powerful influence as Professor of Midwifery in the University of Pennsylvania, and a writer upon obstetrics, gynæcology, and pediatrics.

In after times it is impossible to estimate the degree of influence which has been exerted by such a man as Dewees. It is a matter of tradition only, and we can merely point to the *literæ scriptæ* which outlive him. He contributed a Treatise on the Diseases of Females (1826), which went to the tenth edition; a Treatise on the Physical and Medical Treatment of Children (1825), which reached the tenth edition; and a Comprehensive System of Midwifery (1824), which went into a twelfth edition. Of the last Prof. Hugh L. Hodge[2] declared "it takes a stand decidedly in advance of Denman, Osborne, Burns, and other English authorities in general use in our country at that period, and even of Baudelocque himself in throwing aside from his excellent system much that was useless, and, it may be said, imaginative."

Dewees had two able successors in Meigs and Hodge, both of whom reached old age in the active performance of their professional duties, and left indelible traces of their influence by reason of their strong intellectual qualifications, valuable literary contributions, and rare personal worth.

Charles D. Meigs was born in Bermuda in 1792, and commenced practice in 1815. For many years he filled the chair of obstetrics in the Jefferson Medical College of Philadelphia, and contributed largely to medical literature. His most important works were Woman, her Diseases and Remedies (1847); Obstetrics, the Science and Art (1849); a Treatise on Acute and Chronic Diseases of the Neck of the Uterus (1850); and on the Nature, Signs, and Treatment of Childbed Fevers (1854).

Meigs[3] drew special attention to cardiac thrombosis as a cause of those

[1] Med. Repository, 1817, N. S., vol. iii. p. 388. See also "An analysis of the subject of extra-uterine fœtation, and of the retroversion of the gravid uterus, by John King, Esq., of South Carolina." Norwich, 1818, 8vo. pp. 176.

[2] Memoir in Amer. Journ. of Med. Sci., Jan. 1843.

[3] Med. Examiner, March, 1849, p. 141.

sudden deaths which occur in childbed, and which had generally been attributed to syncope. "I had noticed, on various occasions, the total want of any means of explaining such disasters," says he, referring to sudden deaths post partum, "and remained as much in the dark as my compeers, until I discovered that the incident depends most commonly on the sudden coagulation of the blood that occupies, for the time, the right auricle of the heart, and, in some of the cases, even that which is in the ventricle, and the pulmonary artery."[1]

It has been remarked by an eminent American author that Meigs "just escaped the honour, which is now, and will hereafter be given to the eminent Virchow, of Berlin, of a great pathological discovery." Even admitting the truth of this statement, it is certainly well that the justice of the award should here be questioned. Meigs proclaimed the fact in no uncertain or wavering tones, but boldly, decidedly, repeatedly, and by every method. Why is the honour not his? What else could he have done to deserve it? Many of his countrymen will sympathize with the voice which speaks now, after death, in this unmistakable manner. "I have a just right to claim the merit of being the first writer to call the attention of the medical profession to these sudden concretions of these concrescible elements of the blood in the heart and great vessels." It may be said that he did not follow his discovery into detail as regarded secondary deposits of emboli. What of that? He does not claim to have done so. What he does claim is clearly and unquestionably claimed with justice.

The style of Meigs was peculiarly quaint and antique. Yet he possessed in a remarkable degree the power of fixing salient points upon the mind of the reader or listener, and burning into the memory the maxims which he deemed of greatest importance. Meigs died June 22, 1869.

Hugh L. Hodge practised in Philadelphia from 1818 to 1873, during which period he exerted a wide and decided influence as Professor of Obstetrics and Diseases of Women in the University of Pennsylvania, and as the author of a number of valuable works upon these and kindred subjects. His most valuable contributions to literature were Cases and Observations regarding Puerperal Fever (1833); Diseases Peculiar to Women, including Displacement of the Uterus (1860); Principles and Practice of Obstetrics (1864); and Essays upon Synclitism of the Fœtal Head (1870–71).[2] In his essays and lectures Hodge made prominent, by precept and illustration, the value of forceps as compressors in ordinary delivery, and after perforation; synclitism of the fœtal head; the importance of the induction of premature labour where even without pelvic deformity repeated fœtal deaths have occurred from premature ossification; the prophylactic influence of mechanical support in prevention of habitual abortion, and its efficacy in cases of uterine fibroid; and added to the *armamentarium obstretricum* "Hodge's Forceps," the instrument more generally used in this country than any other; a compressor cranii; a craniotomy scissors; and placental forceps—all attesting rare mechanical ingenuity.

For gynæcology Hodge accomplished much by the origination and development of two ideas which have already done a great deal of good, and will in the future do more than they have yet accomplished. The

[1] Treatise on Obstetrics, 5th ed., p. 352.
[2] Am. Journ. Med. Sci., Oct. 1870, p. 325, and July, 1871, p. 17.

first of these involved the recognition of the fact that that state of the uterus characterized by enlargement, tenderness, displacement, congestion, and hypersecretion is not "inflammation," and should not be treated as such; the second, that a double vaginal lever can supplement the exhausted uterine supports under these circumstances, and by sustaining the uterus give great relief to all these conditions. With regard to the first of these views, nothing more can be stated here than the expression of the belief that it constitutes one of the most important facts in uterine pathology. As to the second, something is necessary. Prior to the time when Hodge began a course of careful, laborious, and conscientious experiments upon the shape, material, uses, and varieties of pessaries (1830), these instruments had been used both in this country and in Europe. Indeed, even as long ago as the period of the Greek civilization they had been employed. But the disk, the globe, and similar instruments were badly contrived, did not depend upon any true mechanical principle, and accomplished little by comparison with what Hodge's improved instruments have since done. He introduced the philosophical double lever, gave accurate and precise rules for replacing and sustaining the displaced uterus by it, insisted upon every pessary sustaining itself against the vagina instead of against the rami of the pubes, particularly urged that after being placed both uterus and pessary should be movable in the pelvis, and thus brought a subject which had before belonged to the realms of empiricism into the precincts of science. Hodge's pessary is unquestionably the parent stem from which the host of excellent modifications now existing took their rise. It may safely be averred that he accomplished more for mechanical support of the uterus than any one has ever done before or since his time. He first constructed these instruments out of silver which was plated lightly with gold, but in time he used vulcanite or hard rubber entirely.

Hodge once gave to a friend this account of the consummation of the discovery of the lever pessary: "He had been contemplating for a long time the subject of new shapes for pessaries, and after many experiments had found nothing satisfactory. One evening, while sitting alone in the room where the meetings of the Medical Faculty of the University were held, his eyes rested on the upright steel support by the fireplace, designed to hold the shovel and tongs. The shovel and tongs were kept in position by a steel hook, and as he surveyed the supporting curve of this hook, the longed-for illumination came; the shape, apparently so paradoxical, revealed itself in the glowing light and flickering flame of the burning grate, and the Hodge lever pessary was the result."[1] A sudden effort of genius, was it? No: this was the moment at which the detached thoughts, long and carefully stored away in the inventor's mind, combined to form a harmonious whole. The steel hook did for his mind what the swinging church lamps did for that of Galileo in suggesting the pendulum.

Henry Miller was born in Kentucky, in 1800, commenced practice in 1821, and published a work upon Human Parturition in 1849, and upon the Principles and Practice of Obstetrics in 1858. He was for a long period Professor of Obstetrics and Diseases of Women in the University of Louisville, and both as teacher and writer decidedly influenced the department to which he devoted his energies. We owe to him the

[1] Discourse Commemorative of H. L. Hodge, M.D., by R. A. F. Penrose, M.D. Phila., 1873.

method of making the application of fluid caustics to the cavity of the body of the uterus by saturating with them a cotton wrapped rod or probe, and he was among the first to adopt the use of the speculum uteri in the great West, and the first to employ in that part of our country anæsthesia in midwifery.

In 1819 the chair of obstetrics in the College of Physicians and Surgeons of New York was filled by one who will long be remembered for his eloquence, erudition, and rare geniality—John W. Francis. Unfortunately for the department which now engages our attention, Dr. Francis turned his literary efforts in the direction of general medicine, literature, and pathology. Little remains to us of his obstetrical writings except his copious annotations of Denman's Midwifery, which he edited in 1821. A perusal of these makes one regret that he did not leave behind him more extensive contributions to this department embodying more of his large experience and acute observation.

The next systematic writer upon this department in the United States was Gunning S. Bedford, who practised in New York from 1830 to 1868; was for over twenty years Professor of Obstetrics in the University Medical College, and published a work on Diseases of Women and Children in 1855, and another on the Principles and Practice of Obstetrics in 1861.

In the year 1841, Bedford established, in connection with the University Medical College of New York, the first clinic for the diseases peculiar to women ever held in this country. This he maintained with great ability, energy, and enthusiasm, and from it he gleaned the material for a work which created a very decided sensation both in this country and in Europe. This clinic, under the care of his able successors, Charles A. Budd and M. A. Pallen, still exists. But it has been the parent of many other similar ones not only in New York but throughout our country. No medical school, indeed, is now considered complete without such a sphere for the instruction of students, and a vast deal of good has resulted from his move in this direction.

Thus far this essay has chiefly dealt with the labours of those of a past generation who, in the early part of the century, sustained the department of which we write; and the careers as well as the works of individuals have been noted. From this point we are called upon to undertake the more delicate and far more difficult task of dealing with the labours of our contemporaries. The chief reason for the difficulty and delicacy of this duty grows out of the fact that nothing is harder than to arrive at a just appreciation of the merits of contemporaries, more especially on the part of those labouring in the same field. Prejudice, personal bias, and that tendency which all men feel to undervalue what is at their own doors, and exalt that to which distance lends enchantment, all combine to defeat a just, fair, and generous estimate. Then, too, the umpire, however conscientious and unprejudiced he may be, lacks the great assistance which the test of experience alone can give in deciding as to the value of new procedures and the credit which should be accorded to their discoverers. He has not the opportunity of learning the verdict of time as to what is and who are the fittest to survive; of that "wise beneficent law by which the improvement and perfection of the human race alone can be secured; that law in consequence of which the best specimens of a species survive, and become the progenitors of generations more perfect than those preceding them." The only feelings which can sustain him who makes the effort and render him impervious to

the shafts of criticism, is an abiding faith in the rectitude of his intentions, and in the sincerity of his efforts to render to every man, without prejudice or favour, what he honestly regards as his just dues.

The plan which suggests itself as best is to notice, 1st, the original discoveries which have proved of greatest practical value; 2d, the most striking and important contributions to periodical literature and systematic works upon the subject; 3d, instruments and mechanical contrivances of greatest importance.

In the year 1841 a most important contribution was made to the treatment of peritonitis by Alonzo Clark,[1] of New York, in the introduction of the plan now known as the "opium treatment." In the spring of that year Dr. Clark saw several cases of this disease treated by Armstrong's method—a full bleeding, and a full dose of opium, to prolong the effects of the bleeding. He was impressed with the idea that opium was the curative agent, not the bleeding. In the next three years he treated all the cases he met on that idea, giving opium, or an opiate, in full and frequent doses, and nothing else. The result was that just eight out of nine cases were cured. A success very encouraging, but not quite so marked, attended the similar, subsequent use of the drug. With this experience he resolved to give it a trial in puerperal peritonitis. The opportunity, however, did not occur till 1848. The first trial was successful, the patient taking 100 grs. of opium in four days. Between that date and 1852 nothing occurred that was decisive regarding the merits of the plan. But in the latter year an epidemic of puerperal fever occurred at Bellevue Hospital, in which the exclusive opium treatment was fully tested by him. In the first case it failed, or rather through the timidity of the House Physician, it was not tried—only three grains of opium were given in twenty-four hours. A few days later four cases came under his care at once. He assigned them to another member of the House Staff, a man of more decided character, now a distinguished surgeon and sanitarian, with detailed instructions. All of these were cured. It was in the course of this outbreak that the opium treatment for puerperal peritonitis was shown to be the best that had then, or has since, been proposed. This physician assisted in the treatment of puerperal fever in the same hospital twelve years earlier, in which, out of thirty attacked, twenty-nine died. Nothing was then known of the antiphlogistic power of opium.

The quantity of opium, or one of its alkaloids, required to subdue and control the inflammatory process varies greatly. In some cases two grains of powdered opium every two hours answers the purpose, while in others eighty drops of Magendie's solution (xvj grs. of morphia to one ounce of water) every two hours for six or seven doses are required. Dr. Clark records a case in which the patient took during "the first twenty-six hours, of opium and sulphate of morphia, a quantity equivalent to 106 grains of opium; in the second twenty-four hours she took 472 grains, on the third day, 236 grains, on the fourth day, 120 grains, on the fifth day, 54 grains, on the sixth day, 22 grains, and on the seventh, 8 grains."

By this system a tolerance of the drug is rapidly effected, pain is annihilated, nervous and mental disquietude relieved, and the most satisfactory results commonly attained. While it is put in practice, however, a physician should constantly remain by the bedside to detect the devel-

[1] New York Journ. of Med., Jan. 1858, p. 82; and Ramsbotham's Syst. of Obstetrics, Am. ed., Phila., 1855, p. 533.

opment of dangerous narcotism, and combat it by appropriate means. It is surely not claiming too much for Clark's method to assert that it surpasses in efficacy all others which have yet been made known to the profession.

In 1844, Dr. J. C. Nott,[1] of Mobile, published a case of "coccygeal neuralgia," in which he practised extirpation of the bone, which proved to be carious, with entire relief to his patient. This was the first time that either this disease or its remedy had been described. At a later period Sir James Simpson, not knowing of Nott's essay, described the disease under the name of coccyodynia or coccygodynia, and advocated the same method of treatment.

Although a decided impulse was given to gynæcology by the introduction of the speculum by Récamier, a great need was felt of something which would expose the uterus and vagina to more complete and satisfactory investigation. For want of this the cure of vaginal fistulæ had thus far proved impracticable, and many operations upon the uterus itself difficult of accomplishment. In 1852 there appeared an article from the pen of a hitherto unknown author, which changed all this, and threw a flood of light into dark places. This was an essay upon vesico-vaginal fistula, by J. Marion Sims,[2] then of Montgomery, Alabama, in which he introduced a speculum which developed a new principle of examination of the uterus and vagina. The discovery of a method of cure for vaginal fistulæ was a great stride onward, but the method of examination by retraction of the perineum and posterior vaginal wall, while the body of the patient is so placed as to secure distention of the vagina by air, has served to give to gynæcology an impulse second in importance only to that given by Récamier. Récamier's discovery lifted this department from the field of speculation to that of science. Sims has served to advance it very greatly beyond the point which it would have occupied if reliance were still placed upon previous methods.

Important discoveries are not made suddenly as if by one leap on the part of some great intellect. They are arrived at slowly, step by step, and by the workings of many minds; as many unseen influences slowly mature a harvest which in due time falls to one sickle. The inspiration of discoverers is the offspring of the times in which they live; such men are exponents of the mental workings of their period, mouth-pieces of the civilization which developed them. The resultant of the premises evolved from ten great minds of one decade are often combined in the deductions of a single genius in another. Hence it is that discoveries are often simultaneously made in various parts of the world by men who have had no communication with each other, and that their origination is invariably disputed by rival claimants. Morse discovered the telegraph, but ever since Franklin's kite brought down the lightning from the skies, many others had been preparing the way for him. Wells discovered anæsthesia, but for many years before, school-boys had for their amusement been painlessly bruising themselves under the influence of laughing-gas, never dreaming that the means of securing unconsciousness of pain which they adopted would one day become systematized and utilized as a great boon to humanity.

These remarks find no more perfect illustration in the discoveries of

[1] New Orleans Medical Journal, May 1844, p. 58; and Am. Journ. Med. Sci., Oct., 1844, p. 544.

[2] American Journ. Med. Sciences, Jan. 1852, p. 59.

surgery than that of the cure of vesico-vaginal fistula. The writings of the Greek, Roman, and Arabian schools of medicine are singularly silent with reference to an accident which has a striking faculty of pressing itself upon the attention, and must have been very common before the days of the Chamberlaynes. From the times of Paré, however, it attracted the special care of surgeons, and year after year efforts were made to close these small, but important, lesions. It would take too much space to tell of the efforts of Paré, Roonhuysen, Vœlter, Fatio, and many others; suffice it that at the beginning of the nineteenth century nothing had been accomplished. In the eighteenth, however, "coming events cast their shadow before," and the glimmer of the dawn became visible in the operations, and occasional successes of Desault, Naeglé, Schreger, Lallemand, and Roux. In 1834 Gossett, of London, absolutely discovered the method of cure, and, his labours being forgotten, Metzler, of Prague, in 1846, again did so. And now, too, Hayward and Mettauer, of this country, began to get good results. But sporadic, desultory, haphazard results mark a different era from systematic and certain ones, and the matter may be said to have been really little advanced till Marion Sims published to the world his method of treating these accidents, which was at once so simple and systematic as to place the procedure at the disposal of every surgeon.

No more forcible comment can be made upon the perfection of Sims' procedure than the mere citation of the fact that even now it stands, for the great majority of surgeons, virtually unaltered, and as simple in details as when it left the master-hand.

Various modifications have been suggested both in this country and in Europe. Chief among these are the clamps of Battey, Atlee, and Bozeman. The last of these only deserves special mention on account of the excellent results which have been obtained with it by its originator, Nathan Bozeman. This operator, who was the earliest to follow Sims in this field of surgery, and who has devoted himself to it with an earnestness which has been surpassed by that of no other, has always preferred a modification of the knee-elbow position to that on the side, and has approximated the pared edges of the fistulous orifice by passing his sutures through a leaden shield, or, as he styles it, a "button suture." By this method very gratifying results are obtained, and after an experience of more than twenty years with it, its originator still employs it with confidence in its advantages over the suture alone.

The medical profession in New York, recognizing the value of Sims' discoveries, warmly endorsed an effort on his part to establish a Woman's Hospital in that city, where, thanks to the well-known generosity of its citizens, such an institution was founded in 1855. From this institution, through the labours of Sims and his able coadjutor Thomas Addis Emmet, a great deal has emanated for the advancement of gynæcology. To these two men a great deal of credit is due for establishing and disseminating an exact and systematic method in the study of the diseases of women. The greater facility afforded for operations upon the vagina and uterus by Sims' method of examination, has accomplished an improvement in all such procedures, and these two operators, who were first in the field with this advantage on their side, have been greatly instrumental in this result. Operations upon the perineum, upon fistulæ, upon constricted and tortuous uterine necks, upon voluminous and atonic vaginæ, have all felt this influence. Posterior instead of lateral section of the cervix for

anteflexions of body and neck, is a good example of such an improvement as has been thus effected.

Until the establishment of Marion Sims as a specialist in diseases of women in New York about the year 1852, no one in this country had heretofore devoted himself to this department to the exclusion of general practice. By him and by T. A. Emmet and H. R. Storer more than any others, this practice was established. That a great deal of good has resulted from the devotion of able minds to the special investigation of this subject, no candid observer can doubt. And yet every thoughtful man who wishes well to the department, must view with concern the unwise haste with which young practitioners, who have had neither time nor opportunity to acquire experience in general medicine, strive to devote themselves to it. Can it ever be that he who knows little of the management of the diseases which affect the peritoneum, stomach, lungs, and liver, can deal efficiently with the disorders of an organ or set of organs which are especially affiliated with them in all their variations of disease, in all their physiological functions? He who deals efficiently with the whole, may in detail deal with all its parts, but he who learns to deal with a part alone, can never be equal to coping with the whole.

Before the introduction of Sims' method of uterine examination, the use of the vaginal tampon, the most important of all hemostatic means in connection with the non-pregnant uterus and with this organ up to the fifth month of pregnancy, was difficult, painful, and unreliable. The introduction of a silk handkerchief, a kite-tail tampon, a mass of cotton, a muslin bandage, and all similar materials, was very unsatisfactory. The most perfect facility and efficiency attend tamponing the vagina with wet cotton while the patient lies upon the side, and the vagina is dilated by means of the duck-bill speculum. Pieces of cotton soaked in water, pressed and flattened out by the fingers, each about the size of a very small biscuit, are pressed into the vaginal cul-de-sac by means of forceps till this is filled. Then other pieces are packed firmly around the cervix until only the os is visible—a smaller pad is then pressed firmly against or introduced within the cervical canal, and the whole vagina is then filled to its lowest portion.

At a meeting of the American Medical Association in 1853, a prize was awarded to a very remarkable and valuable essay by Dr. W. L. Atlee,[1] entitled, "The Surgical Treatment of Certain Fibrous Tumours of the Uterus heretofore considered beyond the resources of Art." In this Dr. Atlee advocated the removal, by enucleation, of tumours which up to this time were looked upon as incurable, and by his brilliant results he led the way to a plan of treatment which has been productive of a great deal of good. His plan of treating these growths is now very commonly adopted by practitioners who appear to forget to whom the heroic and life-saving method is due. Even as early as 1850, Prof. Mussey of Ohio remarked, "Of all the achievements of modern surgery, we meet with none more striking or extraordinary than the operations performed by Professor Atlee for the removal of intra-uterine fibrous tumours."

In 1854, a gold medal was awarded by the Ohio State Medical Society to Dr. M. B. Wright of Cincinnati, for an essay entitled "Difficult Labours and their Treatment." In this essay the operation of bimanual version was so fully, so clearly, so unmistakably described, that it is difficult to understand how many of his countrymen could have since per-

[1] Trans. Am. Med. Association, 1853, vol. vi. p. 547.

mitted themselves to style the procedure by any other name than "Wright's Method." An examination of the written testimony bearing upon the subject, certainly seems to give endorsement to the following claim on the part of Wright.

"I claim the credit, if credit there be, of having first suggested to the profession, and demonstrated in practice, the value of bimanual version."[1]

It must be understood that Wright neither claims nor deserves the credit of the discovery of bimanual version as a procedure, but only that of the method of its performance. Flamand long before him described cephalic version by this method, but Wright improved upon and simplified the procedure. This is Wright's description of his plan:—[2]

"Suppose the patient to have been placed upon her back, across the bed, and with her hips near its edge—the presentation to be the right shoulder, with the head in the left iliac fossa—the right hand to have been introduced into the vagina, and the arm, if prolapsed, having been placed, as near as may be, in its original position across the breast. We now apply our fingers upon the top of a shoulder, and our thumb in the opposite axilla, or on such part as will give us command of the chest, and enable us to apply a degree of lateral force. Our left hand is also applied to the abdomen of the patient, over the breech of the fœtus. Lateral pressure is made upon the shoulders in such a way as to give to the body of the fœtus a curvilinear movement. At the same time, the left hand, applied as above, makes pressure so as to dislodge the breech, as it were, and move it towards the centre of the uterine cavity."

All controversial topics should be avoided in an essay like the present, but it would be discourteous to a distinguished English obstetrician not to note the fact that he has doubted the claim of Wright to originality in this matter. In a letter published in the *Amer. Journ. of Obstetrics*, etc., for Feb. 1873, Dr. Braxton Hicks, of London, says:—

"Now the distinctive point of the plan I have introduced was just this, that *both hands are used together*, one supplementing the other, so that when the internal hand began to lose power the external one would begin to gain power, and *vice versa*. This principle was applied by me to both partial and complete version, and it is (as far as I have been able to discover) a curious fact that in the practice of neither German nor other obstetricians has the use of the two hands simultaneously been described. The only use of the outside hand has been hitherto to steady the uterus to prevent recession. This character it is which Dr. Richardson[3] has overlooked, and it is for this that I am desirous of claiming for *myself* whatever of originality it possesses."

This claim is perfectly clear, and can be answered without difficulty or circumlocution. Wright says "at the same time the left[4] hand, applied as above, makes pressure so as to dislodge the breech, as it were, and move it towards the centre of the uterine cavity." Surely no one can suppose that this means that the left hand merely steadies the uterus. Cazeaux declares that Flamand got hold of the head with the hand in the vagina, "if the efforts made by the other hand through the abdominal walls, have not proved sufficient to make it descend into the excavation."

There is no question as to the fact that Dr. Hicks has done a great deal of good in simplifying podalic version by this method. But the exten-

[1] Letter to the author of this review in Jan. 1876.
[2] Trans. Ohio State Med. Soc., 1854, p. 82.
[3] Who maintains Wright's claim.
[4] The right hand is in the vagina.

sion and utilization of a method is not here at issue; it is the origination of the principle which is in question.

Even had Wright not made this advance, it seemed destined to be made in America, for in the next year Penrose,[1] of Philadelphia, in an article entitled "Cephalic version in shoulder presentations, with the arm in the vagina," described bimanual version without a knowledge of the fact that he had been anticipated by Wright.

During the course of the same year a very valuable contribution was made to the treatment of septicæmia following ovariotomy, by E. R. Peaslee,[2] of New York. His method was the introduction of a catheter or similar tube into the peritoneal cavity and boldly washing out this serous sac, interference with which had for all time been regarded with so much dread. Experience with the plan, extended now over a period of twenty years, stamps it as a reliable method of meeting one of the most dangerous consequences of this grave operation, and corroborates the high estimate which was put upon it in the early days of its existence. Unquestionably many lives have been saved by a timely resort to it. In one of Peaslee's early cases the use of intra-peritoneal injections was kept up for fifty-nine days, and in another for seventy-eight days. In both of these cases recovery took place as a reward for the prolonged and persevering efforts of the fearless innovator.

In 1856, Sims made known his operation for narrowing the vagina for the cure of prolapsus uteri. In this he had been anticipated by Dieffenbach, Heming, and other Europeans, but his method was an improvement over others, and was a revival of what had fallen into almost entire disuse.

In the same year,[3] Dr. James T. White, of Buffalo, reduced by taxis an inversion of the uterus of eight days' standing. In his report of this case he took occasion to predict that the profession would soon alter its views with regard to the practicability of reposition in chronic cases, a prophecy which was happily fulfilled, in great degree in consequence of his own labours, two years afterwards.

Daillez,[4] who published a thesis upon this subject as early as 1803, reported a case of reduction by taxis as late as the eighth month after occurrence of the accident; another is reported in 1847; and even as late as 1852, Canney and Barrier are declared to have accomplished it. But the plan was not systematized and placed upon the basis of a recognized and legitimate procedure until 1858, when White of Buffalo, and Tyler Smith of London, simultaneously replaced uteri in the condition of chronic inversion, and gave to the procedure the position of a standard operation.

Up to the present date White has successfully reduced by taxis twelve cases, extending from seven months to twenty-two years in duration.

In 1858, Gaillard Thomas[5] published an essay upon the treatment of prolapse of the funis by gravitation developed as a remedial measure by placing the patient in the genu-pectoral position. This plan, which it appears had been formerly in use, had been so entirely lost sight of, that for ten years after its introduction by him, the fact of

[1] Medical Examiner, July, 1855, p. 405.
[2] Am. Journ. Med. Sci., April, 1863, p. 355, and July, 1864, p. 47. See also Amer. Journ. Obstet., 1870, vol. iii. p. 300.
[3] Buffalo Med. Journ., vol. xi. p. 596.
[4] Colombat, Dis. of Women, Am. ed., p. 186.
[5] Trans. of N. Y. Acad. of Medicine, vol. ii. p. 21.

its previous existence was not known. Since the time of his article it has come into general use as the most rational and simple method of treating this accident during the earlier stages of labour.

The intractable nature of, and extreme distress attendant upon chronic cystitis, are too well known to require mention. For a long time the attention of American surgeons has been directed to the relief of this condition by surgical means. In 1846,[1] Willard Parker created a recto-vaginal fistula in the male for the removal of a stone, and being struck by the relief afforded to a cystitis which existed, he subsequently repeated the operation for the relief of the latter condition in men between that time and 1867, when he read an essay upon the subject before the New York State Medical Society. "The object in view," says he, "was to open a channel by which the urine could drain off as fast as secreted, and thus afford rest to the bladder, the first essential indication in the treatment of inflammation." In 1867, Paul F. Eve followed Parker's example in thus operating upon the male. But in 1861,[2] Nathan Bozeman applied the procedure to the female bladder with the result of curing chronic cystitis

Without a knowledge of any of these facts the same idea suggested itself to the minds of Sims and Emmet[3] as early as 1858, and at a later period, 1861, the latter of these gentlemen, at the suggestion of the former made three years before, practised the operation for chronic cystitis in the female. Although the origination of the method does not belong to Emmet, to him is justly due the credit of having systematized the procedure, and placed it upon the basis of a recognized surgical resource. Whether it is destined to give way before the less serious procedure of distending the urethra, and thus establishing incontinence of urine, time will prove. That it is in itself a most valuable operation, no one can doubt who has seen the relief afforded by it to women nearly exhausted by ceaseless vesical tenesmus, loss of sleep, and nervousness.

In Smellie's[4] *Collection of Preternatural Cases and Observations in Midwifery*, vol. iii. p. 232, will be found evidence of the fact that that great obstetrician recognized the value of gravitation, developed by placing the patient in the genu-pectoral position, as an aid to the operation of podalic version. He mentions his having repeatedly resorted to this posture in performing version, but does not claim originality for it, as he styles it "Daventer's method." The first case in which Smellie resorted to it occurred in 1753. In Wright's pamphlet, already alluded to, published in 1854, and entitled "Difficult Labors and their Treatment," the following passage occurs on page 23: "The hand can be more readily introduced into the uterus, and the feet reached, however, with the patient on her elbows and knees, than when on the back or sides. There may be cases, in which advantage would be gained, by placing the patient in this position, preparatory to cephalic version."

It will be observed that Smellie resorted to the knee-elbow position as an adjuvant to podalic version, and that Wright very cautiously offers it as a mere suggestion. To P. R. Maxon, of Syracuse, N. Y., belongs the credit of having established the claims of this method in the performance of cephalic version in cases of transverse presentation. He thus

[1] Transact. of N. Y. State Med. Soc., 1867, p. 345.
[2] Ibid., 1871, p. 326.
[3] Amer. Practitioner, Feb. 1872, p. 65.
[4] Ibid., Jan. 1876, p. 59.

describes the procedure in the case of a lady who had previously lost three children by podalic version.

"Remembering the fate of the other children, and finding this one very large, I suggested the feasibility of correcting this shoulder presentation in the same manner as I had corrected the abdominal in the first instance. With his (the attending physician's) consent, I made the effort in the following manner: I folded several quilts compactly, laying them upon one another to the height of about one foot, and assisted her to kneel upon the quilts with her head and shoulders resting upon the bed and her face forwards, so as to bring her body to an angle with the bed of nearly 90°. I then pressed my hand gently against the shoulders, which readily receded, until I was enabled to clasp the vertex with my fingers, and with the assistance of the next pain to so "engage" it that, when the patient was placed upon her left side and the quilts removed, a perfectly natural presentation presented itself. In a few hours the labour terminated in the delivery of a healthy boy, weighing ten pounds."

No one who has not resorted to Maxon's method can appreciate the great facility with which a shoulder or even an arm presentation may be altered into one of the vertex; and no one who has done so will doubt the great value of the plan. Of course, after the amniotic fluid has been long evacuated, and the uterus has firmly clasped the fœtal body, such a change will often prove impossible; but in many cases, before this unfortunate chain of circumstances has occurred, the operation of podalic version with all its serious consequences to mother and child may be avoided, and a natural parturition be substituted for an unnatural one.

In 1861[1] Sims described the disease known as vaginismus, which had, however, been previously noted by Burns, Simpson, Debout, and several others, and recommended for its relief a procedure which, while it involves little risk to the patient, insures a certain removal of the disorder. This consists in ablation of the remains of the hymen and section of the tissues at the perineal extremity of the ostium vaginæ.

Several European authorities have advocated in preference to this plan forcible distention of the ostium vaginæ and modification of the local nervous hyperæsthesia by alterative applications. A comparison of the two methods at the bedside will be greatly in favour of the former.

In 1862[2] E. Noeggerath, of New York, proposed and practised the method of reduction of an inverted uterus by digital compression of both horns. He based this procedure upon the pathological fact that inversio uteri generally begins by inversion of the horns. Experiment proves the method of Noeggerath to be a valuable and reliable one, which should rank among the important contributions which have been made to this subject.

In 1867[3] Theophilus Parvin described an operation for uretero-vaginal fistula, a condition which had previously attracted little attention. This consisted in first turning the displaced distal extremity of the ureter into the bladder, and then closing the vaginal opening. The case reported was the first of this kind upon which the operator had essayed the method, and it proved entirely successful.

In 1868[4] a valuable suggestion, illustrated by a case, was made by T. A. Emmet for the management of cases in which partial success attends reposition of an inverted uterus. This consisted in keeping the

[1] Trans. Obstet. Soc. London, vol. ii. p. 356.
[2] Bulletin N. Y. Acad. Med., vol. i. p. 410.
[3] Western Journ. of Med., vol. ii. p. 603.
[4] Am. Journ. of Med. Sciences, January, 1868, p. 91.

partially replaced body within the cervix by closing the os externum uteri by silver sutures. By this method the advance gained at one sitting is not lost, and the case is better prepared than it would otherwise be for further efforts.

In 1869[1] Julius F. Miner, of Buffalo, made a valuable contribution to the management of the pedicle of tumours removed by ovariotomy. His method consisted in stripping off from the tumour the expansion of the pedicle instead of ligating and severing it. In many cases Miner's method is of inestimable value, and allows of a successful issue to cases which would otherwise prove exceedingly difficult if not impossible of management.

J. Marion Sims[2] in the same year published an important essay entitled the "Microscope in Diagnosis and Treatment of Sterility." His observations bore especially upon the deleterious effects exerted upon the vitality of the zoosperms by ichorous discharges from the endometrium. Treatment, of course, was to be directed to the eradication of the disorder which gave rise to this devitalizing secretion.

In 1870[3] Gaillard Thomas performed the operation of vaginal ovariotomy, removing an ovarian cyst the size of a large orange through an opening made through the vagina and Douglas's pouch. This was the first time that this procedure was ever advised or practised for this purpose. His patient recovered.

In 1872[4] R. Davis, of Wilkesbarre, Pa., in the same manner successfully removed an ovarian cyst weighing nine pounds. In rupturing adhesions, which were abundant, his hand was passed high up into the peritoneal cavity, the sac extending several inches above the umbilicus, and forming a tumour about the size of a pregnant uterus at seven months of utero-gestation. His patient recovered.

In 1873[5] J. T. Gilmore, of Mobile, Ala., performed the same operation successfully. The temperature of his patient never rose to 100° F.

In 1874[6] Robert Battey, of Atlanta, Ga., removed in the same way a cyst the size of a small orange. The patient rapidly recovered.

By the same method, Battey has nine times extirpated the ovaries in pursuance of a plan which will now be mentioned, and Marion Sims has done so three times.

In 1872 Robert Battey[7] published an essay advocating extirpation of the ovaries with the intent of prematurely inducing the menopause in cases in which menstruation is productive of very bad results. To use his own words, it is "an operation for the removal of the normal human ovaries, with a view to establish at once the 'change of life,' for the effectual remedy of certain otherwise incurable maladies."

Too short a time has thus far elapsed for this bold innovation to have received its just estimate. It is not saying too much, however, even now to declare that its future will probably be one of a great deal of usefulness when it has been circumscribed by proper limits and the class of

[1] Buffalo Med. and Surg. Journ., June, 1869, p. 418. See also American Journ. Med. Sci., Oct. 1872, p. 391.
[2] N. Y. Med. Journ., January, 1869, p. 393.
[3] Amer. Journ. Med. Sciences, April, 1870, p. 387.
[4] Trans. State Med. Soc. of Penna., 1874, p. 221.
[5] N. O. Med. and Surg. Journ., Nov. 1873, p. 341.
[6] Personal communication.
[7] Atlanta Med. and Surg. Journ., Sept. 1872, p. 321.

cases to which it is appropriate has been clearly defined. Thus far Battey's operation has been practised in the United States

by Robert Battey . . .	10 times.	8 recoveries.	2 deaths.
" Marion Sims	5 "	4 "	1 "
" Gaillard Thomas . . .	1 "	1 "	0 "

Battey[1] thus expresses himself concerning some of the important points connected with this subject:—

"I have operated in widely different circumstances. In one case the patient had amenorrhœa, convulsions, recurrent hematocele, repeated pelvic abscesses, incipient tuberculosis from pulmonary congestions, etc. Several of the cases passed under the head of ovarian neuralgia; several had intractable dysmenorrhœa with pelvic deposits of old lymph; one had ovarian insanity, etc. All had exhausted the available resources of the art to no useful purpose. *I operate upon no case that any other respectable medical man proposes to cure.* In most of my cases the full results of the menopause have not yet been developed. This is the work of many months, and sometimes two or three years are necessary to its full and perfect realization. In no case has the patient failed to realize such a degree of relief and benefit following the operation as to amply compensate her for all the pains and dangers incident thereto, to say nothing of the promise of full and ample recovery at the completion of the physiological 'change.' In two of my cases this *change* has seemed to occur at once in all its completeness; but it is always my expectation that it will occur gradually, and extending through two or even three years to its final completion. In my first case (now three years ago) the restoration to health is eminently satisfactory. It is true that she is not absolutely and perfectly well, but she is fully relieved of the convulsions, the violent periodical congestions, the hematoceles, the pelvic abscesses, etc., for which I operated. I submit to you the question in all sincerity, if I confine myself to cases where life is endangered, or where health and happiness are destroyed—cases which are utterly hopeless of other remedy this side the grave—ought the profession to demand at my hands the restoration of these forlorn invalids to a state of complete and absolute health in every particular?"

In 1873[2] John Ball, of Brooklyn, published the results of a plan of treating constrictions and tortuosities of the canal of the cervix uteri resulting from versions and flexions, by rapid dilatation, by expanding instruments of steel. Ellinger, of Germany, has likewise adopted this heroic method, but Ball declares that he has employed it for several years, and without the knowledge that any one else was testing it. The procedure is thus described by its originator:—

"My method of procedure is first to evacuate the bowels pretty thoroughly beforehand, so as to prevent all effort in that direction for two or three days; I then place the patient upon her back, with her hips near the edge of the bed, and, when she is profoundly under the influence of an anæsthetic, I commence by introducing a three-bladed, self-retaining speculum, which brings in view the os uteri, which I seize with a double-hooked tenaculum, and draw down toward the vulva, when I first introduce a metal bougie as large as the canal will admit, followed in rapid succession by others of larger size until I reach No. 7, which represents the size of my dilator. I then introduce the dilator, and stretch the cervix in every direction, until it is enlarged sufficiently to admit a No. 16 bougie, which is all that is generally necessary. Then I introduce a hollow, gum-elastic uterine pessary, of about that size, and retain it in position by a stem, secured outside of the vulva, for about a week, in which time it has done its work, and is ready to be removed.

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[1] Amer. Practitioner, Oct. 1875, p. 207.
[2] N. Y. Med. Journ., Oct. 1873, p. 363.

"During this time I keep the patient perfectly quiet, and usually upon her back, which is generally found to be the most comfortable position."

To the uninitiated this procedure appears fraught with great danger, but the originator declares that out of between twenty and thirty cases he has met with but one fatal issue. He says:—

"According to my own experience, it causes much less constitutional disturbance than the use of tents; and I think it safer even than the metrotome, and free from some serious objections to the use of the latter; as, for instance, when incisions are made through the tissues of the cervix, unless carried deep enough to prevent reunion, they must of necessity form a cicatrix, which will interfere, more or less, with the dilatation of the parts. And, when the operation does not succeed, the patient is left in a worse condition than before; while, in the rapid and forcible dilatation of the cervix, there is no sacrifice of the integrity of the parts, and, being done under the influence of an anæsthetic, there is no shock of the nervous system, and generally but little subsequent suffering."

In 1874 an important contribution to the pathology and treatment of diseases of the cervix uteri emanated from T. A. Emmet.[1] It had long been known, that, as the head of the child passed the os externum uteri, lacerations of its muscular walls often occurred; but up to this time it had not been recognized how uniformly this condition is confounded with the so-called ulceration of the cervix, and how commonly the eversion of the lips of the cervix resulting from it is mistaken for hypertrophy of the cervical tissues. Emmet advocated for this condition vivification of the edges of the lacerated parts, and approximation of them by suture. This procedure is one of most beneficent character, and one which must take rank as an important advance in gynæcological surgery.

The medical literature of the first quarter of the present century contains several allusions to an operation styled gastro-elytrotomy, a procedure intended to avoid cutting through the uterus and peritoneum, and yet allowing of the removal of the child through the abdominal walls and above the true pelvis.

This operation has attracted the attention of four obstetricians: Jorg in 1806, Ritgen in 1820, Physick in 1822, and A. Baudelocque in 1823. Kilian, in speaking of Jorg's conception of the operation, says that he merely suggested it; and even if he had performed it, his results would not have been admitted in a fair appreciation of the operation, since he did not propose avoiding the peritoneum, a prominent feature of the method. The same writer alludes to one operation by Ritgen which ended fatally. In 1870, Gaillard Thomas, without a knowledge of the fact that he had been anticipated in the procedure, delivered in this way a living child. The operation was at that time thus described by him:[2]—

"The patient being placed upon a table, anæsthesia was produced, so as to quiet her restlessness and jactitation, with a few inhalations of ether. I then passed my hand up the vagina and dilated the cervix slowly and cautiously, so that at a three-quarter distention no injury was done to its tissue. With a bistoury I then cut through the abdominal muscles, the incision being carried from the spine of the pubis to the anterior superior spinous process of the ileum. The lips of the wound were now separated, and by two fingers the peritoneum was lifted with great readiness, so that the vagino-uterine junction was reached. The vagina was now lifted by a steel sound passed within it, and cut, and the opening thus made was enlarged by the fingers. The cervix was

[1] N. Y. Med. Journ., July, 1874.
[2] Amer. Journ. Obstet., vol. iii. p. 125.

then lifted into the right iliac fossa by the blunt hook, while the fundus was depressed in an opposite direction. I then passed my right hand into the iliac fossa, and introduced two fingers into the uterus, while the left hand, placed on the outer surface of the uterus, depressed the pelvic extremity of the fœtal ovoid. The knee was readily seized, and delivery easily and rapidly accomplished."

In 1876,[1] Alexander J. C. Skene, of Brooklyn, performed this operation with a brilliancy of result never before attained by any one. The patient was a small rachitic woman, aged thirty-one years, who had been three times delivered, once by craniotomy and twice by premature delivery at the seventh and eighth months. One of the last two children had lived a few minutes, and one for several months. In her fourth pregnancy Dr. Skene let gestation advance to full term; then, finding an arm and the cord presenting, he performed gastro-elytrotomy, saving the mother and a vigorous child weighing ten pounds. Both made a perfect recovery.

This completes the list of those contributions to obstetrics and gynæcology on the part of this country which appear to be especially marked by originality and by practical utility. But how difficult is it to decide what really deserves the credit of original conception? "Is there anything whereof it may be said—See, this is new? it hath been already of old time which was before us. There is no remembrance of former things." As the husbandman turns up to the light and brings into activity and usefulness the mould which, though buried for ages, was in by-gone times ploughed by his predecessors, so do the seekers after new ideas bring to light the thoughts of those whose discoveries have been long ago forgotten. Who is to decide how long a time must intervene between the periods of successive discovery to warrant for the latest aspirant the claim of originality?

The peculiar features of the contributions just enumerated seem to warrant their arrangement in a special category, but this does not argue in them greater value than that attaching to those of somewhat different character which come to be considered now. Indeed, some of the latter type have exerted a more powerful and widespread influence than many of the former, and have been productive of greater good to medicine and humanity.

In June, 1842, Jos. Warrington's "Obstetric Catechism" which for a time was used as an epitome of the subject of midwifery by students, appeared.

The year 1843 was marked by the appearance of an essay[2] which was productive of a great deal of good, from the pen of the eminent poet-physician, Oliver Wendell Holmes. At that period the then authoritative works upon obstetrics, those of Dewees and Meigs, both maintained the non-contagiousness of puerperal fever. Holmes boldly joined issue upon this momentous point, and, although devoting much less attention to this department than the authors mentioned, his observations led him to a more correct conclusion.

In 1845 an important contribution to a subject which even now has received little attention, was made by Isaac E. Taylor, of New York, in an essay upon Rheumatism of Uterus and Ovaries.[3] In this some strik-

[1] Amer. Journ. Obstet., vol. viii. p. 636.
[2] New England Quarterly Journ. of Med. and Surg., April, 1843, p. 503.
[3] Amer. Journ. Med. Sci., July, 1845, p. 45.

ing cases of rheumatic disorder of the muscular structure of the pregnant uterus were recorded.

During this year W. L. Atlee published a synopsis[1] of 101 ovariotomies, and an essay upon Intra-Uterine Fibroids.[2]

During the next year an essay appeared from Samuel Kneeland, Jr.,[3] of Boston, maintaining a close relationship between epidemic erysipelas and puerperal fever. It is well known how much favour this view has since met with.

The year 1846 was marked by a discovery in this country which may be said to overshadow any other of its contributions to medicine. I allude to anæsthesia, discovered by Horace Wells, a dentist of Connecticut, and subsequently made practicable and useful by W. T. G. Morton, likewise a dentist, of Boston. Only the relations of this subject to obstetrics and gynæcology find legitimate place in this essay.

In January, 1847, anæsthesia by ether was first employed for assuaging the pains of labour by Prof. Simpson, of Edinburgh; in April of the same year it was employed in this country, by Dr. N. C. Keep, of Boston; and in May, by Dr. Channing, of Boston, in a case of instrumental labour. The introduction of this beneficent agent into the lying-in chamber constitutes an era in the history of obstetrics. It is somewhat singular that after the discovery of anæsthesia in this country; after the prediction, long before its discovery, by one of America's greatest physicians, that "'a medicine would be discovered that should suspend sensibility altogether, and leave irritability, or the powers of motion, unimpaired, and thereby destroy labour-pains altogether;" after it had been employed here in hundreds of cases for surgical operations, this link of the chain should have been forged by a European. Yet such was the case, and far be it from any American to begrudge him one atom of the glory which he deserves, or to endeavour to dim its lustre by "faint praise."

Boston was the field in which the first demonstrations of anæsthesia, as an agent of practical value, were made, and there appeared the first and most ardent advocate of its use in obstetrics in this country. Dr. Walter Channing was elected to the chair of obstetrics in Harvard, in 1833, and was recognized as a leader in this department, both from his teachings and writings. He warmly espoused the subject, and in 1848 published a treatise on Etherization in Childbirth, illustrated by 581 cases. This volume numbers 400 pages, and served to bring the subject fully before the whole civilized world. So well did it serve its purpose that no similar work has since appeared either from an American or European author.

What a striking contrast is presented between the rapid acceptance of this discovery by the whole medical world and the tardy, unwilling, bitter reception of ovariotomy! The first patient in Boston submitted to operation under anæsthesia, was etherized by Morton in October, 1846. Writing in April, 1847, Hayward declares that ether "has probably been used in this way by several thousand individuals in this city within the last six months," and, in 1848, Channing,[5] of the same city, illustrates the utility of this agent in the lying-in chamber alone by the citation of over five hundred cases.

[1] Amer. Journ. Med. Sci., April, 1845, p. 309.
[2] Trans. Amer. Med. Assoc., vol. iii. p. 380.
[3] Amer. Journ. Med. Sci., April, 1846, p. 324.
[4] Rush, Med. Inquiries and Observations, 3d ed., vol. iv. p. 376.
[5] Etherization in Childbed, Boston, 1848.

In 1847, I. E. Taylor contributed an essay drawing attention to the causation of exophthalmos and enlargement of the thyroid gland by excessive lactation; and Fordyce Barker one upon diseased states of the uterine neck.

In 1850 the first attempt at the establishment of an obstetric clinic in this country was made by J. P. White, of Buffalo. In furtherance of this mode of instruction, the act of human parturition was displayed ocularly to some sixteen students, the professor explaining its features during its accomplishment. A perfect storm of popular, and to a certain extent of professional indignation, was excited by this, which was only stemmed by the dignified and bold attitude of the united faculty of the University of Buffalo, and the support lent by enlightened obstetricians thoughout the land.

The whole subject was fully brought out in the trial of the People *v.* Dr. H. N. Loomis, a report[1] of which to-day constitutes a curious episode in the medical literature of the century. In this will be found a letter signed by seventeen physicians, characterizing the demonstration as "wholly unnecessary, and grossly offensive, alike to morality and common decency."

During the next year a full synopsis[2] of all the known cases of ovariotomy which had up to that time been performed appeared from W. L. Atlee. This embodied 222 cases, and constituted the most valuable statistical table which had yet appeared.

In the same year a masterly essay upon the Corpus Luteum of Menstruation and Pregnancy[3] was submitted to the American Medical Association, and was awarded the prize. Its author was John C. Dalton, of New York.

In 1853 Thomas F. Cock published a Manual of Obstetrics,[4] a *multum in parvo* of the most reliable maxims in that art, which even now constitutes the *vade mecum* of many of our students.

Two years afterwards a paper[5] was read by Fordyce Barker before the New York Academy of Medicine upon the Treatment of Puerperal Convulsions, which fully presented all that was then known upon a subject which has since called forth so much discussion. In the same year R. A. F. Penrose published an interesting and valuable essay upon a Case of Triplets, with the Mechanism of Labour.[6]

In the same year James Deane, of Massachusetts, published an essay upon "The Hygienic Condition of the Survivors of Ovariotomy," which was particularly valuable at a time when this operation was being weighed in the balance and its beneficent results doubted by many of the most sincere investigators.

In 1856[7] there appeared the most exhaustive and valuable essay upon ovariotomy which had yet been published. This was the prize essay of Geo. H. Lyman, of Boston, entitled, "History and Statistics of Ovariotomy, and the Circumstances under which this Operation may be regarded as Safe and Expedient." It appeared at a most opportune moment, and, characterized as it was by a fair and manly spirit, a remarkable degree of accuracy, and entire absence of narrow and prejudiced

[1] Jewett, Thomas & Co., Buffalo, 1850.
[2] Trans. Amer. Med. Assoc., vol. iv. p. 286.
[3] Ibid., p. 547.
[4] W. Wood & Co., N. Y.
[5] Transactions, vol. i. p. 273.
[6] Med. Exam., Feb. 1855, p. 77.
[7] Publications of Mass. Med. Soc., May, 1865.

views, it did a great deal of good in reference to the important subject with which it dealt. Although twenty years have elapsed since its publication, it can still be read with profit and be regarded as a safe guide in reference to many essential points.

During the years 1848 and 1856 there appeared in the *American Journal of the Medical Sciences*[1] some very valuable essays of statistical character upon rupture of the uterus by J. D. Trask, of Astoria, Long Island. These were valuable by the faithfulness and accuracy which characterized them, and the thoroughness with which the subject was treated. The same author has now nearly ready for publication a paper bringing the subject down to the present day.

In the latter of these years I. E. Taylor, in a report of Two Cases of Recto-Vaginal Fistula, cured by a New Operation,[2] advocated severance of the sphincter ani in such cases after the manner of Rhea Barton.

During the succeeding year two valuable papers appeared, one by Emil Noeggerath upon Metastatic After-Pains,[3] and another by J. Marion Sims, upon Silver Sutures in Surgery.[4]

In 1858 J. Foster Jenkins,[5] of Yonkers, made an important contribution to the literature of the subject of spontaneous umbilical hemorrhage in the newly born, and William Read, of Boston, one upon the influence of the Placenta upon the Development of the Uterus during Pregnancy.[6]

During the following year three essays well worthy of note appeared; two by Noeggerath, upon the Local Disinfecting Treatment of the Cavity of the Uterus for the Treatment of Puerperal Fever,[7] and on the Operation of Turning by External Manipulations;[8] one by Sims upon Amputation of the Cervix, Stump covered with Vaginal Membrane.[9]

In 1861 William Read published a paper[10] upon The Formation of Knots in the Umbilical Cord, and Fordyce Barker[11] one on the Use of Anæsthetics in Midwifery. The latter of the subjects was one requiring at that time all the light which could be shed upon it by conscientious observers.

In this year there appeared[12] an interesting paper by Samuel R. Percy, of N. Y., demonstrating the tenacity of vitality possessed by the human zoosperm. His statements are here given in his own words:—

"I was called to attend a lady with uterine disease, but I considered it best to postpone all treatment, as on the next week her husband would leave home to be absent two or three months. On the Monday following he left, but she did not call upon me until a week from the day following. On examination with the speculum I found a mass of what I supposed to be muco-purulent matter, proceeding from the os uteri. Wishing to ascertain its character, I examined it with the microscope, and was surprised to find that it was semen, and that it contained living spermatozoa and many dead ones. Communicating in a proper way my discovery, I questioned her as to the time of her last intercourse with her husband. It was on the Monday morning before leaving,

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[1] N. S., vol. xv. pp. 104 and 383, and xxxii. p. 81.
[2] N. Y. Med. Journ.
[3] N. Y. Journ. Med., May, 1857, p. 287.
[4] Trans. N. Y. Acad. Med., Nov. 1857.
[5] Trans. Amer. Med. Assoc., vol. xi. p. 263.
[6] Am. Journ. Med. Science, April, 1858, p. 309.
[7] Contrib. to Midwifery and Dis. of Women, New York, 1859.
[8] N. Y. Journ. of Med., Nov. 1859, p. 329.
[9] Trans. N. Y. State Med. Society, 1861, p. 367.
[10] Am. Journ. Med. Sci., Oct. 1861, p. 381.
[11] Trans. N. Y. Acad. Med., vol. ii. p. 251.
[12] Amer. Med. Times, March, 1861, p. 160.

nearly eight and a half days previous. I would stake my reputation on her honour." Dr. Percy further says: "Knowing that the zoosperms of the frog are frequently found living days after the frog's death, and even when it has been frozen, I can conceive no reason why human spermatozoa may not retain their vitality for some time, especially when protected by warmth and placed in the situation where nature designed them. But to test this matter, I placed some semen in the lower part of a piece of moistened membrane, tied it, and placed it within the vagina of a mongrel bitch. Upon removing it, upon the sixth day, most of the zoosperms were possessed of vitality, though there were many dead ones. These facts may have an important bearing in a medico-legal way."

During the next year the subject of Pelvic Hæmatocele began to attract considerable attention in America. From the year 1831, in which it was first described by Récamier, of Paris, it had not ceased to attract considerable attention in France, and between that period and 1858 Bernutz, Vigues, Nelaton, Gallard, and Voisin had written their well-known essays upon it. Up to this year, however, only one case had been reported amongst us, and it constituted an era in the subject for three essays to appear in one year. One was by John Byrne, of Brooklyn; one by Fordyce Barker; and one by E. Noeggerath. All these were read before the N. Y. Academy of Medicine, and appeared in its Transactions.

During this year I. E. Taylor published a valuable essay[1] upon the non-shortening of the supra and infra-vaginal portion of the cervix uteri up to the full term of gestation. In this the author contested the views of Stoltz, of Strasbourg, to the effect that gradual expansion of the cervical canal during the latter months of pregnancy effaced or obliterated that portion of the uterus.

In 1863, H. R. Storer,[2] of Boston, added to the literature of the subject of anæsthesia in midwifery and medical surgery an essay of considerable value; Barker one upon Albuminuria[3] as affecting Pregnancy, Parturition, and the Puerperal State; and E. N. Chapman a report[4] entitled a Selection of Remarkable Cases.

The next year saw the publication of two able papers upon Ovarian Tumours and Ovariotomy,[5] by E. R. Peaslee; an essay upon Spinal Irritation,[6] by Charles F. Taylor; and an excellent treatise upon Chronic Inflammation and Displacement of the Unimpregnated Uterus, by W. H. Byford, of Chicago.

In 1865, T. A. Emmet published upon the Treatment of Dysmenorrhœa and Sterility,[7] resulting from Anteflexion of the Uterus, and upon the Radical Operation for Procedentia;[8] I. E. Taylor upon Placenta Prævia;[9] and Peaslee[10] gave Statistics of 150 Cases of Ovariotomy.

The work of Byford, mentioned as having appeared in 1864, had already met with so brilliant a success that it now reappeared, enlarged and improved, under the title of the Medical and Surgical Treatment of Women.

[1] Am. Med. Times, vol. iv. p. 342.
[2] Boston Med. and Surg. Journ., vol. lxix. p. 249.
[3] Bulletin N. Y. Acad. Med., vol. ii. pp. 36 and 67.
[4] Med. and Surg. Reporter, Phila.
[5] Bull. N. Y. Acad. Med., vol. ii. p. 226.
[6] Trans. N. Y. State Med. Soc., 1864, p. 126.
[7] New York Med. Journ., June, 1865, p. 205.
[8] Ibid., April, 1865, p. 1.
[9] Trans. N. Y. State Med. Soc., 1865, p. 62.
[10] Am. Journ. Med. Sci., Jan. 1865, p. 89.

During the next year, I. E. Taylor[1] reported sixty cases of recto-vaginal and recto-labial fistulæ treated by the plan already mentioned, and Emmet[2] published an essay upon Atresia Vaginæ.

This year was specially marked by the appearance of a work which more profoundly aroused the gynæcologists of Europe, as well as of America, than any other which had appeared since those of Bennet and Simpson. This was a work entitled Clinical Notes on Uterine Surgery, by J. Marion Sims. The clear, forcible, and persuasive style of this work, the record of successful operations which it contained, and the stamp of earnest and original thought which it bore upon every page, served to give it a circulation which demanded its translation into almost all the modern languages of Europe, and to make it an essential in the library of every progressive gynæcologist. Ten years have elapsed since its publication, and yet it may safely be stated that no work now extant constitutes a more perfect guide to the gynæcological surgeon.

In this year appeared, too, an excellent treatise of over fifty pages upon Vesico-vaginal Fistula, by M. Schuppert, of New Orleans. This contained an exhaustive *resumé* of the history of the operation, was fully illustrated, and embodied the extensive experience of one who has made himself well known as a successful operator in this field of surgery.

In this year, also, especial attention was called to the subject of extirpation of the uterus for fibroids, by the publication of a successful case, by H. R. Storer,[3] in which this organ and both ovaries were removed. This grave procedure, recommended, but never practised, as early as 1787, by Wrisberg, was in the present century performed by Clay, of Manchester, and Kœberlé, of Strasbourg. In 1854, the first operation was performed in this country for this purpose, by Kimball,[4] of Lowell, the tumour weighing six pounds, and the patient recovering. He has been followed by Burnham, Cutter, Peaslee, Darby, Sims, Atlee, Wood, Sands, Buckingham, Storer, Hackenberg, Weber, Thomas, Chadwick, and others. The statistics of the procedure in this country have not been collected, but it is safe to say that no such results can be reported as have recently come to us from Paris, where M. Péan has met with a success of seven out of nine, or an equivalent of seventy-eight out of one hundred. Kimball has thus far performed ten operations, with four recoveries and six deaths. In New York city the operation has been repeatedly performed, but never yet with a favourable issue.

In 1867, Dr. E. D. Miller,[5] of Boston, published an essay introducing into practice the scarification of the lining membrane of the body of the uterus, and described an instrument for performing this operation; and a valuable paper was read before the American Medical Association by Stephen Rogers,[6] of New York, advocating gastrotomy after rupture of the cyst of extra-uterine pregnancy, for the purpose of ligating bleeding vessels, and thus giving the patient a chance for life. As early as 1849 this course had been suggested by W. W. Harbert in the *Western Journal of Medicine and Surgery;* but to Rogers belongs the credit of pressing the claims of the idea upon the profession in a way to attract to it the grave attention which it deserves.

[1] Trans. N. Y. State Med. Soc., 1866, p. 97.
[2] Richmond Med. Journ., Aug. 1866, p. 89.
[3] Am. Journ. Med. Sci., Jan. 1866, p. 110.
[4] Bost. Med. and Surg. Journ., May, 1855, p. 249.
[5] Ibid., March, p. 133.
[6] Trans. Am. Med. Assoc. 1867, vol. xviii. p. 85.

Montrose A. Pallen, formerly of St. Louis, now of New York, read in the same year an interesting paper on the Treatment of Certain Uterine Abnormities, before the American Medical Association, and published a *Resumé*[1] of forty-six operations for dysmenorrhœa by the division of the cervix uteri.

Wm. T. Lusk[2] also made a contribution entitled Uræmia, a Common Cause of Death in Uterine Cancer.

In this year H. Lenox Hodge,[3] in a case of tubo-uterine pregnancy, performed a very remarkable and successful operation for removal of the fœtus. The pregnancy had advanced to the eighth month, and a thin septum divided the true and unoccupied uterus from the adjoining vicarious one so as to prevent delivery. Hodge cut through this, and delivered the child *per vias naturales*. The child lived about ten hours, and the mother recovered.

In 1868 the first journal ever devoted especially to the interest of obstetrics and gynæcology in America appeared in New York. The establishment and early maintenance of this excellent quarterly, styled *The American Journal of Obstetrics and Diseases of Women and Children*, were entirely the results of the energy and enterprise of a single member of the profession, B. F. Dawson. After eight years of existence it has established its right to be considered one of the most valuable periodicals of the country, and under its present editor, Paul F. Munde, fully maintains its position.

During this year there appeared three works in this department of medicine; first, the Obstetric Clinic of George T. Elliot, classic in style, and replete with the wise counsels of a master in the obstetric art; second, a Treatise upon Vesico-vaginal and Recto-vaginal Fistulæ, by T. A. Emmet; and third, a Practical Treatise upon the Diseases of Women, by Gaillard Thomas.

Two good papers likewise appeared, one upon Intra-uterine Injections, by M. A. Pallen,[4] and one upon the Treatment of the Uræmic Convulsions of Pregnancy by Morphia, by F. D. Lente.[5]

In 1868, H. R. Storer,[6] of Boston, advocated inclosing the pedicles of ovarian tumours in the abdominal walls. This method, which he styled "pocketing the pedicle," consisted of fixing it in the abdominal opening and completely covering it by the cutaneous tissues.

The year 1869 was rich in essays of considerable value. Chief among these may be mentioned one upon Ovariocentesis Vaginalis,[7] and another upon Chronic Metritis in its relation to Malignant Disease of the Uterus, by Noeggerath; one by Wm. Goodell,[8] of Philadelphia, upon Concealed Accidental Hemorrhage of the Gravid Womb; one upon the Surgery of the Cervix in connection with the treatment of certain Uterine Diseases, by T. A. Emmet;[9] one upon Hypodermic use of Ergot in Post-

[1] Humboldt, Med. Archives, 1867, vol. i. p. 7.
[2] N. Y. Med. Journ., June, 1867, p. 205.
[3] Parry, op. cit. p. 266.
[4] St. Louis Med. and Surg. Journ., July, 1868, p. 294.
[5] Med. Record, April 15.
[6] Ibid., Jan. 15, 1868, p. 519.
[7] Amer. Journ. Obstetrics, May and November.
[8] Ibid., vol. ii. pp. 1, 505, and 610.
[9] Ibid., February, 1869, p. 339.

partum Hemorrhage, by F. D. Lente;[1] one upon Face Presentations, by I. E. Taylor;[2] one upon Intra-uterine Injections, by Joseph Kammerer;[3] one by J. G. Pinkham,[4] of Lynn, on Scarification of the Fundus Uteri in Chronic Metritis and Endometritis, which had been previously advised by Miller; one by H. R. Storer[5] upon a Method of Exploring and Operating upon the Female Rectum by Eversion of the Anterior Rectal Wall by a finger in the Vagina; and one upon the Pathological Sympathies of the Uterus, by V. A. Taliaffero,[6] of Ga.

The literature of fibro-cystic tumour of the uterus is very recent. In 1869 Koeberlé, of Strasbourg, tells us that only fourteen cases had been recorded, and of these two were discovered *post-mortem*. In that year C. C. Lee,[7] of New York, collected nineteen cases, and published them in an interesting paper.

In the same year[8] Gaillard Thomas published the account of a case of inversion successfully reduced by dilatation of the constricting neck through an opening in the abdomen made by section through its walls. This procedure has not met with favour, and has not since that time been repeated by any one but its author.

During this year a society, which exerted considerable influence in arousing attention to the subject of Gynæcology in New England, was formed in Boston, chiefly through the exertions of Horatio R. Storer, and called the Gynæcological Society of Boston. Before the year had expired a journal emanated from this society styled the Journal of the Gynæcological Society of Boston. It now no longer exists, but during its period of publication it exercised a decided influence in this department of medicine.

Societies devoted to obstetrics and gynæcology have likewise been established in Louisville, Philadelphia, and New York. They are still in active operation, and furnish in their proceedings and reports a valuable fund of information to the general reader of the medical periodicals of the country.

We now arrive at the commencement of the present decade, and during the six years of it which have now expired, so numerous have been the contributions to this department, that only a small proportion, consisting of the most valuable, can be noticed. During the first year of this period, there appeared Byford's Treatise on the Theory and Practice of Obstetrics, the first systematic work upon this subject which had appeared since that of Bedford, which is elsewhere noticed. An excellent paper likewise appeared from C. C. P. Clark,[9] of Oswego, upon the Management of the Obstetric Forceps, replete with the sagacious observations of an original and candid observer; and an important essay upon Anal Fissure in Women, by H. R. Storer.[10]

[1] N. Y. Med. Record, vol. iv. p. 411.
[2] N. Y. Med. Journ., November, 1869, p. 125.
[3] Read before Co. Med. Soc.
[4] Journal Gynæcological Society, Boston, vol. i. p. 23.
[5] Ibid., vol. i. p. 24.
[6] Ibid., vol. i. p. 341.
[7] Med. Record, vol. iv. p. 495.
[8] Amer. Journ. Obstetrics, November, 1869, p. 423.
[9] Trans. N. Y. State Med. Soc., 1870, p. 249.
[10] Journal Gynæcological Society, Boston, vol. ii. p. 221.

The next year produced a carefully prepared and interesting essay by Wm. Goodell,[1] entitled A Critical Inquiry into the Management of the Perineum during Labour; one of great practical value by the late John S. Parry[2] upon Sudden Enlargement of Ovarian Cysts from Hemorrhage into them; one upon Dysmenorrhœa and its Treatment by M. A. Pallen;[3] a report of a Case of Simultaneous Intra- and Extra-uterine Pregnancy going to Full Term, by S. Pollak;[4] a paper upon Mechanical Treatment of Displacement of Unimpregnated Uterus, by George Pepper, of Philadelphia;[5] a very valuable essay upon Placental Extraction and Placental Expression, by Parvin;[6] and an equally valuable one by Nathan Bozeman[7] upon Urethrocele, Catarrh, and Ulceration of the Bladder in Females.

The next year was marked by the appearance of three works devoted to this department of medicine; first, one upon Ovarian Tumours, their Pathology, Diagnosis, and Treatment, by E. R. Peaslee; second, one upon Hysterology, by E. N. Chapman; and third, one upon Electro-cautery in Uterine Surgery, by John Byrne. The first of these is certainly the most systematic and complete treatise which has thus far appeared upon this subject, and the last, although small in dimensions, deals exhaustively with the important matter upon which it touches.

During this year there appeared a remarkable essay upon Latent Gonorrhœa in Females, by Noeggerath. In this the author strongly assumes the position which is here announced in his own words.[8]

"I have undertaken to show that the wife of every husband who, at any time of his life before marriage, has contracted a gonorrhœa, with very few exceptions, is affected with latent gonorrhœa, which sooner or later brings its existence into view through some one of the forms of disease about to be described. . . . . I believe I do not go too far when I assert that, of every 100 wives who marry husbands who have previously had gonorrhœa, scarcely 10 remain healthy; the rest suffer from it or some other of the diseases which it is the task of this paper to describe. And, of the ten that are spared, we can positively affirm that in some of them, through some accidental cause, the hidden mischief will sooner or later develop itself."

The disorders supposed by the author to result from latent gonorrhœa are perimetric inflammations, both acute and chronic; ovaritis; and catarrh of the genital tract.

In the same year Parry[9] published an essay upon the comparative merits of craniotomy and Cæsarean section in pelves with a conjugate diameter of 2¼ inches or less.

The idea of draining the peritoneal cavity by creating an opening *per vaginam* into its most dependent portion, the pouch of Douglas, has often presented itself to the minds of ovariotomists. As early as 1855[10] the practice was adopted by Peaslee, and subsequently by Kimball, of

[1] Amer. Journ. Med. Sci., Jan. 1871, p. 53.
[2] Amer. Journ. Obstetrics, Nov. 1871, p. 454.
[3] Missouri Med. and Surg. Report.
[4] St. Louis Med. and Surg. Journal, May, 1871, p. 193.
[5] Amer. Journ. Obstetrics, Aug. 1871, p. 258.
[6] Trans. Ind. State Med. Soc., 1871, p. 11.
[7] Amer. Journal Obstetrics, Feb. 1871, p. 636.
[8] Published in Bonn.
[9] Amer. Journ. Obstet., Feb. 1873, p. 644.
[10] Handyside, of Edinburgh, first did this in 1846.

Lowell; W. W. Green and Tewkesbury, of Portland; Miner, of Buffalo; Thomas, of New York, and others. This plan of accomplishing drainage of the peritoneal sac has by no means met with general approval or adoption. Nor is it probable that it will ever do so, for between the peritoneum and vagina there is an interspace which is filled by areolar and adipose tissue into which an escape of putrid fluid must often enter and from which it would readily be absorbed.

In 1872 Marion Sims[1] revived the method and by passing into the peritoneum, through the vagina, tubes of small calibre admitting of perfect drainage, and the use of disinfectant injections he hoped to overcome more perfectly than had hitherto been done, the fatal consequences of septicæmia. The reviver of this plan of drainage still has sanguine hopes of its success, and commonly resorts to it.

In the year 1873, Thomas M. Drysdale of Philadelphia, after a careful and conscientious study of the subject, described a peculiar characteristic corpuscle as contained in ovarian fluid. This he regarded as diagnostic of ovarian cystoma. He sums up his views upon the matter in these words:—

"I claim then, that a granular cell has been discovered by me in ovarian fluid, which differs in its behaviour with acetic acid and ether from any other known granular cell found in the abdominal cavity, and which, by means of these reagents, can be readily recognized as the cell which has been described; and further, that by the use of the microscope, assisted by these tests, we may distinguish the fluid removed from ovarian cysts from all other abdominal dropsical fluids."

These views are by no means generally accepted by microscopists, but their author feels sure of his position, and W. L. Atlee, many of whose diagnoses have in great degree rested upon them, has full faith in its correctness.

In this year a remarkable paper entitled, "How do the Spermatozoa enter the Uterus,"[2] by Joseph R. Beck, of Indiana, appeared. The author, meeting with a female patient, the subject of prolapsus uteri, who was so excitable as to have the sexual orgasm produced by digital examination, examined visually as this occurred, and thus reports what he saw: "The os and cervix uteri had been firm, hard, and generally in a normal condition, with the os closed so as not to admit the uterine probe without difficulty; but immediately the os opened to the extent of fully an inch, made five or six successive gasps, drawing the external os into the cervix each time powerfully, and at the same time becoming quite soft to the touch. All these phenomena occurred within the space of twelve seconds' time certainly, and in an instant all was as before; the os had closed, the cervix hardened, and the relation of the parts had become as before the orgasm." Similar observations had been previously made by Sitzmann,[3] of Germany, and published in 1846.

In the next year W. L. Atlee gave to the profession a work entitled General and Differential Diagnosis of Ovarian Tumours, with special reference to the operation of ovariotomy, and occasional pathological and therapeutical considerations. This embodied his vast experience,

[1] New York Med. Journ., Dec. 1872, p. 561.
[2] St. Louis Med. and Surg. Journ., New Series, vol. ix. p. 449.
[3] A. Flint, Physiology of Man, vol. v. p. 339.

and recorded the results of his numerous operations for the removal of tumours of the uterus and ovaries.

In this year likewise appeared the work of D. Hayes Agnew, of Philadelphia, upon Laceration of the Female Perineum and Vesico-vaginal Fistula, their history and treatment. This likewise was the production of a man of mature thought and great experience and knowledge of the subject with which he dealt. To this author the profession is indebted for a great deal of honest and valuable labour in reference to the surgery of the female genital organs.

A lengthy report, in book form, of the Columbia Hospital for Women, in Washington, D. C., was made by J. H. Thompson, and a valuable essay was published by T. A. Emmet,[1] upon Laceration of the Perineum, involving the Sphincter Ani, and an Operation for securing Union of the Muscle. Emmet in this essay urges upon operators the necessity of inserting the first suture low down, on a level at least with a horizontal line running along the lowest edge of the anus, so as to lift the ends of the broken muscle up, and cause them to approximate. This constitutes the pivotal point of the operation.

In this year, also, appeared an essay by W. T. Lusk,[2] on the Etiology and Indication for Treatment of Irregular Uterine Action during Labour.

The year 1874 was very prolific in contributions to this department. In it appeared a work which has met with great and deserved success by Fordyce Barker, upon the Puerperal Diseases, and an essay by the same author, upon[3] The Age when the Capacity for Child-bearing ceases.

In this year two articles appeared from one of America's greatest ovariotomists, Gilman Kimball,[4] of Lowell, upon Pelvic Drainage after Ovariotomy; a noteworthy report by the late A. K. Gardner, of a case in which ten quarts of urine were at one operation removed from the female bladder; a paper by H. Lenox Hodge,[5] upon Injection of Tincture of Iodine into the Cavity of the Uterus in Hemorrhage after Delivery; a report by Goodell[6] on The Means employed at Preston Retreat for the Prevention and Treatment of Puerperal Diseases; a most valuable and masterly essay on the Mechanism and Treatment of Breech Presentations, by R. A. F. Penrose;[7] a description of an operation styled Vagino-cerviplasty,[8] a substitute for amputation of the cervix uteri in certain forms of intra-vaginal elongation, by Pallen; an additional paper, on The Physiological Lengthening of the Cervix Uteri at, before, during, and after Delivery, by I. E. Taylor;[9] one by Marion Sims,[10] upon Enucleation of Intra-uterine Fibroids, and one upon Erysipelas in Child-bed Fever, by Thomas C. Minor, of Cincinnati.

[1] Med. Record, March, 1873, p. 121.
[2] N. Y. Med. Journ., June, 1873, p. 561.
[3] Phila. Med. Times, vol. v. p. 161.
[4] Boston Med. and Surg. Journ., 1874, N. S., vol. xiii. p. 517, and vol. xiv. pp. 132, 272.
[5] Am. Journ. Obstet.
[6] Amer. Sup. to Obstet. Journ. of Great Britain, 1874, July, p. 49, and August, p. 65.
[7] Ibid., March, 1874, p. 177.
[8] Amer. Journ. Obstet., Feb. 1875, p. 604.
[9] Ibid., May, 1874, p. 119.
[10] N. Y. Med. Journ., April, 1874, p. 337.

In the same year there appeared a work, small in proportions but powerful in style and effect, from the pen of Edward H. Clarke, entitled Sex in Education. Few works in modern times upon medical topics have so thoroughly succeeded in arousing the attention of the community for whose benefit they were undertaken.

In 1875 James D. Trask,[1] of Astoria, N. Y., published an essay upon Injection of Tincture of Iodine into the Cavity of the Uterus in Hemorrhage after Delivery; J. R. Chadwick,[2] of Boston, one upon Injection of Nutritious or Cathartic Fluids into the Intestines through the abdominal walls by means of an aspirator needle when the stomach proves entirely intolerant; A. D. Sinclair,[3] of Boston, one upon Manual Dilatation of the Os Uteri; Noeggerath[4] one upon Vesico-vaginal and Vesico-rectal Touch, a new method of examining the Uterus and Appendages; and Goodell,[5] a Clinical Memoir upon Turning in Pelves narrowed in the Conjugate Diameter, and another[6] upon The Management of Head-last Labours.

In the same year Wm. H. Byford[7] read before the American Medical Association an able report upon The Treatment of Uterine Fibroids by Ergot (Hildebrandt's method); F. D. Lente[8] and Alex. Murray[9] published essays advocating the use of electricity in arresting post-partum hemorrhage; Parry[10] one upon The Use of the Hand to correct unfavourable presentations and positions of the child during labour; and another[11] upon The History of an Outbreak of Puerperal Fever at the Philadelphia Hospital, characterized by diphtheritic deposits on wounds of the genital organs; M. B. Wright[12] one upon Obliquities of the Gravid Uterus; and Lusk,[13] a valuable report upon The Genesis of an Epidemic of Puerperal Fever.

A very interesting and valuable paper appeared during this year from H. F. Campbell,[14] of Georgia, upon Position, Pneumatic Pressure, and Mechanical Appliance in Uterine Displacements. The author advocates replacement of uteri affected by posterior displacement by the assumption on the part of the patient of the knee-chest position, and the introduction of an open glass tube by herself into the vagina while this position is maintained. He declares that the position, favouring as it does gravitation of the uterus and other viscera forwards, aided by the entrance of air into the vagina by the glass tube, will commonly effect reposition of the displaced organ.

During the same year a faithful Report[15] upon Obstetrics and Gynæcology was made by Wm. T. Howard, to the Medical and Chirurgical Faculty of Maryland; an essay upon Ichthyosis of the Tongue and

[1] Am. Journ. Obstet., Feb. 1875, p. 613.
[2] Ibid., Nov. 1875, p. 399.
[3] Boston Med. and Surg. Journ., Feb. 1875, p. 117.
[4] Am. Journ. Obstet., May, 1875, p. 123.
[5] Ibid., Aug. 1875, p. 193.
[6] Phila. Med. Times, May.
[7] Trans. Am. Med. Assoc., vol. xxv. p. 173.
[8] Am. Journ. Obstet., Nov. 1875, p. 518.
[9] Psycholog. and Med.-Legal Journ., June, 1875, p. 345.
[10] Am. Journ. Obstet., May, 1875, p. 138.
[11] Am. Journ. Med. Sci., Jan. 1875, p. 46.
[12] The Clinic, vol. ix. p. 301.
[13] Am. Journ. Obstet., Nov. 1875, p. 369.
[14] Read before Georgia Medical Association, April.
[15] Transactions Med. and Chir. Fac. of Md. 1875, p. 73.

Vulva was published by R. F. Weir;[1] one upon Menstruation and the Law of Monthly Periodicity, by J. Goodman,[2] of Louisville; and one by D. Warren Brickell, of N. O., upon Rupture of the Perineum,[3] with a description of a new operation.

S. S. Todd,[4] of Kansas City, published a good *resumé* of the subject of Anæsthetics in Labour, embodying the views of many prominent obstetricians in this country and in Europe; and Thomas[5] a case of Tubal Pregnancy treated by incision into the sac by the galvano-caustic knife, and immediate removal of fœtus and placenta through the incision thus made.

H. L. Byrd[6] published the details of a new plan of artificial respiration to be practised upon the neonatus. This consists in the artificial production of the inspiratory and expiratory efforts by alternately bending the trunk of the child, held in the two palms, very much backwards and forwards. As the head and shoulders fall below a horizontal line passing through the operator's hands placed under the infant's loins, and the legs and pelvis below the same line on the other side, air rushes into the lungs by reason of the recession of the diaphragm and separation of the ribs. Then as the diaphragm is pushed upwards, and the ribs approximated by the anterior bending of the trunk, so that the child's knees approach the chin, the air is expelled.

An essay appeared during this year also from Ellwood Wilson[7] upon Version in contracted Pelvis. Controversial in style, it demonstrated the truth of the aphorism "ex collisione, scintilla."

Wm. H. Byford[8] in 1876 published an interesting case of Dropsy of the Amnion, and I. E. Taylor[9] read before the N. Y. Academy of Medicine an essay entitled Is Craniotomy, Cephalotripsy, or Cranioclasm preferable to Cæsarean Section in Pelves ranging from 1½ to 2½ inches?

The subject of inversion of the uterus has, during the last half century, attracted considerable attention in this country, and the valuable contributions of White, Noeggerath, Emmet, and others, to it, have been elsewhere noticed. The remarkable fact that a uterus for a long time inverted may, by an effort of nature, replace itself, has received due notice, and the evidence of American physicians has sustained that given of the fact by Spiegelberg, Leroux, De la Barre, Thatcher, Rendu, Shaw, Beaudelocque, and others of Europe.

It must be borne in mind that the possibility of this occurrence has been boldly denied by high authority, and that accumulation of evidence upon it is desirable. The case of spontaneous reposition recorded by De la Barre[10] was presented by him before the Academy of Surgery of Paris, and Beaudelocque was appointed a committee to examine into its authenticity. He reported that the account was "totally false," yet some

[1] N. Y. Med. Journ., March, 1875, p. 240.
[2] Richmond and Louisville Med. Journ., vol. xx. p. 553.
[3] Amer. Journ. of Med. Sciences, April, 1875, p. 322.
[4] Trans. Med. Association of Missouri, 1875, p. 37.
[5] N. Y. Med. Journ., June, 1875, p. 561.
[6] Med. Record, July 31, 1875, p. 519. His first article on this subject appeared in 1870.
[7] Amer. Journ. Obstet., April, 1876, p. 97.
[8] Chicago Med. Journ. and Exam., January, 1876, p. 1.
[9] Med. Record, March 15, 1876.
[10] Archiv. Gén. de Méd., 1868, t. ii. p. 393.

years afterwards he himself met with the occurrence of a similar case which convinced him of his injustice to De la Barre.

Meigs[1] publishes three such cases; Jason Huckins,[2] of Maine, one; and Chestnut,[3] in 1876, records a most striking case, in which, after twelve years of inversion, a uterus was spontaneously replaced. In the last case no doubt as to the diagnosis can be admitted, for during its progress careful examinations were made by Byford, O'Ferral, and others. Indeed by the former a trial at replacement was practised, which lasted for about two hours.

In the May number of the *Obstetrical Journal of Great Britain and Ireland*, appears an excellent lecture upon Face Presentations, by Penrose; and in the January number of the *American Journal of Medical Sciences*, the report of a case of ovariotomy by Gaillard Thomas, in which four days after operation eight and a half ounces of milk were transfused into the patient's veins with good result. Thomas's procedure was based upon the experience of Hodder, of Toronto, Canada, and Joseph W. Howe, of New York. The former transfused milk on three occasions, and the latter on two. In no case did evil consequences result, and in two of Hodder's cases life seemed to be saved by the process. Thomas's case was the sixth on record, and the results were excellent. Since his publication J. W. Howe has experimented on the subject with very unfavourable results. Transfusion of milk practised upon seven dogs, has in every case resulted in death, and in one man suffering from pulmonary consumption in the third stage death from coma occurred a few hours after the operation. The subject demands, and is certainly worthy of, full and careful investigation. It is difficult to reconcile the discrepancy of results which now attaches to it. At present the subject stands thus: up to 1875 six transfusions upon the living subject with no evil result, and with three instances of great benefit: during 1876 one transfusion upon man, and seven upon dogs, with fatal consequences in every case.

In the yearly contributions to medical literature there is a great deal of faithful, arduous, and useful work done, which redounds but little to the immediate advantage of the doers. This is the work done by reviewers. To J. C. Reeve, of Dayton, Ohio, this department of medicine is much indebted in this respect. His reviews of the subject of anæsthesia which have appeared in the *American Journal of the Medical Sciences*, are well known.

The mental development which appears thus far to have resulted from the peculiar education and training which characterize the civilization of this country, exhibits a much more marked tendency to the adaptation of means to immediate practical results, than to a devotion to abstruse study or pains-taking scientific investigation. Hence a fruitful harvest would naturally be expected in the way of ingenious appliances and well-conceived instruments, the outcome of a century of experimentation. This expectation will not be disappointed either in this or any other of the practical departments of medicine.

A vast number of modifications of the obstetric forceps, both short and long, have been made; so large a number, indeed, that even a mention of them would prove impossible. The most valuable and generally popu-

[1] Obstetrics.
[2] Thomas' Dis. of Women, 4th ed. p. 431.
[3] Amer. Practitioner, May, 1876, p. 284.

lar of these is the long forceps of Hodge. Two other excellent modifications are those of the late George T. Elliot and of J. P. White. The two latter are light, yet powerful; elegant in shape; and well adapted to the varied requirements of this most useful of surgical instruments.

Of vaginal specula there is rapidly being created as great a variety as that of forceps. Sims' great invention, developing an entirely new method of examination, certainly takes the lead of all others, and up to the present date none other can be compared with it for practical advantages. This instrument, however, requires two things for its employment—first, a certain degree of skill on the part of the operator in its use; and, second, an assistant to hold it during examination. To avoid the necessity of the second requirement, modifications have been made by Howard, Emmet, Hunter, Bozeman, Byrne, Nott, Otto, Noeggerath, and many others.

It would be useless to enumerate, as an original conception, each instrument employed in the operation for cure of vesico-vaginal fistula, for all of these were invented by Sims, as the pioneer in this procedure.

The uterine repositor of Sims is the best instrument yet devised for replacing the retroflexed or retroverted uterus. It is far superior to the ordinary uterine sound in efficiency, and unattended by its dangers. The same remarks apply to Sims' silver uterine probe, as compared with the unyielding sounds of Simpson, Huguier, and Kiwisch.

In operations upon the vagina and perineum, Emmet's curved scissors are very useful, and greatly facilitate these procedures; and after operations for atresia, Sims' vaginal plug of hard rubber or glass is indispensable.

For dilating a constricted uterine neck, Molesworth has furnished us an excellent instrument in his hydrostatic dilators, which, though acting upon the same principle as the water-bags of Dr. Barnes, are more powerful and manageable.

The syringe of Davidson is a valuable one for accomplishing vaginal irrigation, and the induction of premature delivery.

In many operations for the removal of abdominal tumours, temporary control of hemorrhage can be perfectly accomplished by H. R. Storer's clamp-shield, which becomes, under these circumstances, a valuable instrument. Permanent clamps have been devised by Atlee, Dawson, Thomas, and Greene, of Portland. The last of these consists of a spring clamp, intended to cause ligatures placed around the pedicle to cut through, and thus be liberated.

The galvano-caustic battery, only of late years introduced amongst us as a means of amputating vascular parts like the cervix uteri, etc., has now become very popular, and the ingenuity of Byrne and Dawson has furnished us with instruments at once small, portable, and very powerful. These instruments weigh only five or six pounds, and occupy little more space than an octavo volume. Their present dimensions and certainty of action remove two of the greatest objections attaching to the cumbrous and fickle instruments formerly in use.

For a long time after pessaries were put upon their proper basis as surgical appliances of great value, and as means which were essential to the proper management of uterine displacements, few modifications were made in them. Of late years, however, this has not been so. Hodge's instrument has been usefully modified by Albert H. Smith.[1] Many varieties

[1] Obstet. Journ. of Great Britain, Amer. Sup., 1875, vol. iii. p. 7.

of vaginal stem pessaries have been devised for prolapsus; and Ephraim Cutter, of Boston, has accomplished a valuable improvement in retroversion pessaries by getting support by a stem arching backwards over the perineum, and attaching to a belt worn around the waist.

In certain operations upon the anterior vaginal wall, the apparatus of Bozeman, by which the patient can be kept in a modified genu-pectoral attitude, proves very useful; by its use anæsthesia may be kept up for a long time with perfect comfort to the patient.

John T. Hodgen, of St. Louis, has made the needles employed in operations for vesico-vaginal fistula trocar-pointed, with great advantage. Their power of penetration is great, while at the same time they do little damage by cutting the tissues.

Parvin's polyptome is a very useful instrument for the removal of growths attached in utero, which are out of reach of manipulations practised by the instruments ordinarily in use.

A most valuable improvement in the trocar and canula for tapping the abdomen and abdominal tumours has been effected by S. Fitch, in his "dome trocar." By this instrument complete protection is given to the viscera by a projecting piece which shields them from its sharp point.

An excellent double canulated tube has been introduced for pelvic drainage by George H. Bixby, of Boston. It fulfils every requirement under these circumstances as to thoroughness and facility of employment.

REVIEWS.

ART. XXVI.—*Lectures on Orthopedic Surgery and Diseases of the Joints.* By LEWIS A. SAYRE, M.D, Professor of Orthopedic Surgery, Fractures and Dislocations, and Clinical Surgery in Bellevue Hospital Medical College, etc. etc. Illustrated by 274 wood-engravings. 8vo. pp. x., 476. New York: D. Appleton & Co., 1876.

THIS book is the work of so distinguished a writer, and one of so high authority among surgeons, especially where articulations are in question, that we think the whole profession will unite with us in extending to it a welcome, which will strengthen as the contents of the volume become known.

While there can be no difference of opinion as to the value of clinical lectures to those who hear them, and at the same time see the cases which elucidate the views of the lecturer, we have always felt that they do not present their subject-matter in the most attractive or most satisfactory form to the general reader. The reasons for this are manifold, and patent to any observer. The lecturer is less trammelled by authorities than the systematic writer; and, while very apt to assume the *ex-cathedra* tone, is often above the mild though useful work of compiling the opinions of others and giving those annotations and references which are so valuable to the student. Then the subjects under discussion are apt to be contracted or expanded by the times and exigencies of the lectures, and the hobbies of the lecturer to be brought into a bold relief, which they would hardly obtain were the object in view the preparation of a treatise with a proper proportion of parts. We do not wish these remarks, however, to be applied to Professor Sayre in particular, but make them merely as indicating the opinion of the reviewer, as to the inherent qualities of clinical lecturers in general. As the best means of avoiding misconstruction, and of affording our readers an opportunity of forming their own opinions of the volume, we shall proceed to lay before them a somewhat cursory analysis of its contents.

Of the four hundred and seventy pages of which the book consists, less than one hundred and forty are devoted to orthopedic surgery proper, as the term is generally understood, while three hundred and thirty are filled with the consideration of diseases of the joints. We say orthopedic surgery proper, because we have always regarded the term as involving either congenital or chronic conditions only. But, while indulging in this verbal criticism, we, in common with most surgeons, would have regarded the work as shorn of much of its glory, and very much of its usefulness, had its author not included in it the views upon joint-diseases, and their treatment, which have made him famous.

The first lecture is occupied with a history of orthopedy, inducements to its study, and the plan of instruction proposed by the lecturer. Prof. Andry, of Paris, is credited with being the founder of the science, in 1741, as well as the inventor of the term orthopedy, although both Hippocrates

and Celsus described methods for the relief of deformities. As is the case with all sciences, many have contributed to the arrangement of facts of which it consists; but with the introduction of subcutaneous tenotomy by Stromeyer, in 1830, a new era has opened before orthopedic surgery. From that apparently so simple discovery, namely, the rapid healing of subcutaneous incisions, has sprung much of the modern progress of this branch of medical science.

In the opinion of Dr. Sayre, orthopedic surgery met with great difficulties upon its first introduction to the medical profession of this country, from the general opposition to specialists. Now there can be little doubt that the great body of general practitioners shared the feeling and prejudice to which the lecturer refers, nor is it yet entirely absent, but, like all mooted points, the subject has two sides. While specialists have added much to our knowledge, and from the nature of things each subdivision in art or science must receive its principal increments of growth from such sources, yet many specialists have not shown such thoroughness of information, outside of their own narrow limits, as to secure the confidence of their brother practitioners. Most of us are familiar with cases in which specialistic treatment has failed to accomplish what was expected from it in consequence of neglect or ignorance of rudimentary principles. Such specialists as are here referred to, have been the real opponents to the subdivisions of medical practice, which have now multiplied, in our large cities at least, until the occupation of a general practitioner bids fair to become a thing of the past, and to share the fate of the dodo of Mauritius and the European bustard. We saw recently a chart intended to aid a family of average intelligence in selecting an attendant, should one of its numbers be overtaken by disease or accident. Upon a diagram of the human frame, in connection with the different regions, were displayed the names of those whose published experience and reputation entitled them to be considered as authorities in affections of the designated localities. It struck us that difficulties would arise in the use of such a chart, however ingenious, and that it would probably be safer to call in the family physician, who could pay his visit, decide what organ or region was in fault, and then turn the patient over to the proper specialist. Such a method would doubtless be very scientific, but might prove rather hard upon the gentleman who gains his bread by general practice, whose only resource under the circumstances would be to become a specialist somewhere between a chiropodist and barber, and endeavour to make his living by science also. Dr. Sayre is clear and emphatic in his denunciations of quackery of every kind; to the knowledge of a thoroughly instructed surgeon he has added special acquirements, the fruits of which are apparent in the volume before us, which volume, with others of like kind, furnish the strongest arguments in favour of specialism.

The plan of our author in these lectures has been to teach by cases rather than by abstract doctrines; and he does not ask assent to the latter unless supported and illustrated by the former.

As there is nothing better fitted to give an idea of any man's mind and his methods of working than the definitions and classifications he uses, we propose to epitomize what Dr. Sayre has said upon these subjects in his second lecture, as follows: Deformities, or morbid alterations in the form of some part of the body, are either congenital or acquired. Congenital deformities are divided, in the first place, into malformations, in which there is "deficiency, or absence, or increase in the number of parts

belonging to the body, or in which there are abnormal parts or fissures." Monstrosities also are classed under this head. The second subdivision states that "a congenital distortion is one in which, *at birth*, there is simply a distortion (*sic*) of some of the normal parts of the body." Acquired deformities are direct, as where anchylosis depends upon a diseased condition of the joint; indirect, as where the mobility of an articulation is affected by disease of the surrounding structures; or direct and indirect combined. Deformities are further treated of as *paralytic* and *spastic*, and rules are given for distinguishing between them. The remainder of the lecture is devoted to the etiology of these affections. The causes of congenital deformities are declared to be at present inscrutable; but it is claimed that, in acquired cases, the starting point can always be more or less readily ascertained. It is held that, when the cause of the deformity is once accurately made out, it is generally easy to prevent or remedy the condition; and that, when it cannot be entirely removed, there is almost always a susceptibility of relief. Deformity may be perpetuated by a secondary condition long after the primary disease has ceased to exist. By way of illustration is instanced a hip-joint in which contraction of the adjacent muscles has been first induced by reflected irritation from the diseased joint. When the joint gets well, the muscles are found to have undergone structural shortening and to be incapable of voluntary relaxation, while by this shortening the deformed condition is kept up. An interesting fact is noticed in this connection, namely, that, when this structural change in the muscular tissue has taken place, the temperature of the part will be found to be lowered, which is attributed by our author, to the diminished vegetative action in the locality. Reference is also made to that beautiful, natural law which requires action to preserve perfection of structure. This reflection is called forth by the joint stiffened and destroyed merely by disuse. Nor need our author have stopped here, for this law is not confined to the physical world; but the mind of man, in common with the machinery produced by its ingenuity, hastens to decay when not in action. Labour is the inevitable requisite for permanent usefulness; and from the fiat that bread shall be eaten in the sweat of the brow, there is no escape.

While discussing the causes of deformities, Dr. Sayre narrates some very interesting cases where deformity resulted from the paralysis of nervous exhaustion, induced by the reflex irritation of phimosis, with adherence of the prepuce to the glans penis. It is in such cases that the capabilities of the specialist are put to the test, as he must be prepared, not only to diagnose the cause, but be ready to follow Dr. Sayre's example and perform the operation which is to remove the source of the evil. In the cases mentioned by our author, circumcision and freeing the glans from the abnormal adhesions was completely successful, and recovery followed with almost startling rapidity. When speaking of the effect exercised by deformities upon the minds of the subjects of them, a case is given where the existence of supernumerary toes and fingers led to a highly hysterical and choreic condition, which entirely subsided with the removal of the offending members.

Postponing the consideration of diagnosis until the special deformities are discussed, the next three lectures are devoted to treatment. Most surgeons will agree with Dr. Sayre when he insists upon the importance of beginning the treatment early, as with rare exceptions no advantage can accrue from waiting. The exceptions we have in mind are some of the

plastic operations, rendered necessary by malformations, which, though included by the author in his classification, are not referred to by him in detail.

On page 27 is given what its author says is a universal law, by which it is possible to decide upon the necessity of resorting to tenotomy in any given case.

"Place the part contracted as nearly as possible in its normal position, by means of manual tension gradually applied, and then carefully retain it in that position; while the parts are thus placed upon the stretch, make additional point pressure with the end of the finger or thumb upon the parts thus rendered tense, and, if such additional pressure produces *reflex contractions*, that tendon, fascia, or muscle must be divided, and the *point* at which the reflex spasm is excited is the point *where* the operation should be performed."

This seems a somewhat too mechanical method of determining the point to be selected for division, yet we hesitate to place our opinion in opposition to the extended experience of so high an authority as the distinguished professor at Bellevue.

General directions are given for the performance of tenotomy and myotomy, Dr. Sayre now advocating an immediate restoration of the parts to their normal position, without waiting for closure of the wound in the skin, as was formerly the advice in vogue. When, however, there is anchylosis of the joint, it is better to wait a few days before breaking up the adhesions therein. This is the doctrine now generally held among surgeons, and there seems to be no ground for opposition to it.

In the directions given for the use of apparatus to substitute or supplement division of the contracted parts, great emphasis is placed upon that golden rule of orthopedic surgery, *to hasten slowly;* indeed too great earnestness can hardly be used in enforcing this truth, for undue haste is self-defeating and sometimes ruinous. Due credit is given to Mr. Barwell for the introduction of India rubber bands to remedy the effects of muscular paralysis, which improved method of treatment is destined to work almost as great a revolution in orthopedic surgery as was accomplished by the discovery of Stromeyer. The caution is given that when electricity is resorted to, it should not be used either too strong or too long, experience teaching that the feeble muscles are as easily over-tired by this as by any other stimulus. Attention is also drawn to the importance of persisting in proper manipulative exercise while a fixed apparatus is in use, in order that anchylosis may not be induced, and we are amused at the energy shown by our author when speaking of the term "massage" which he stigmatizes as having a quackish sound. Dr. Sayre is not much in favour of inunction, says he does not like grease, and wisely thinks that the substances derived from the palm and elbow are the most truly emollient.

The subject discussed through the several following lectures is the special treatment of the various forms of talipes. As is well known, Dr. Sayre looks upon the great majority of these cases as having their origin in paralysis. In this view most modern authorities are agreed, and the instances cited in the volume before us bring out clearly the great advantage of artificial muscles in remedying the effects of paralysis. These muscles are made out of rubber tubes, with light chains at either end. The chains are then attached at one end to little staples projecting from a sheet of tin secured by adhesive plaster near the origin of the natural muscle, while the other end is connected with another staple located near the insertion of the same muscle. The shoe or apparatus used is light and easily changed. Con-

joined with the use of these appliances, free manipulation of the enfeebled member is always carefully attended to by Dr. Sayre, thus stimulating the muscles to healthy contraction, while they are protected from excessive fatigue by the artificial support afforded by the apparatus.

It would be easy to dwell at greater length upon this subject, but the large space already occupied warns us to pass on to that portion of the book which will be most interesting to the general surgeon. The twelfth lecture is occupied with the consideration of corns, bunions, and some other acquired deformities, which are succinctly treated, while in the following lecture we are introduced to diseases of the joints.

This subject is one of great importance, as the experience of every practical surgeon demonstrates, and than which no other surgical affection has a more extended literature. In the treatment of these affections great progress has been made of late years, and hardly any one has come more prominently before the profession in connection with the pathology and treatment of such diseases than the author of these lectures. Certainly on this side the sea, there is no living surgeon who has done more to develop and advance our knowledge of the subject than Dr. Sayre. Many of his opinions may be disputed, yet many of his ingenious expedients have been coming gradually into use among surgeons, so that no one can follow the practice of a first-class hospital, and not see stamped upon it the impress of his and Mr. Barwell's minds.

We notice in this lecture (No. XIII.) that Dr. Sayre is very emphatic in claiming that the astragalus forms a simple hinge-joint with the bones of the leg, and asserts most positively that any apparent lateral motion takes place, in reality, at the articulation of the astragalus with the calcaneum, or is caused by rotation, either at the knee or hip-joints. Some high authorities have disputed this assertion, but when the close contact between the lateral facets of the astragalus and the malleoli is borne in mind, we think Dr. Sayre's statement must commend itself to the judgment of anatomists.

Dr. Sayre, as is perhaps known to most of our readers, holds to the view that joint disease begins, most generally, not in the synovial membrane, nor in the articular cartilage, but in the bone immediately adjacent. He has very little sympathy with the constitutional theory in these affections, although not denying diathetic influences. We are by no means advocates for the *via media* where theory or abstractions are concerned, but here, as in most practical questions, we regard that way as safest. The human frame is of so compound a nature, and its constituents have so much variety of structure, that it is very difficult to make generalizations which will fit all cases. In a joint, for whose integrity the health of so widely varied, though contiguous elements, is necessary, our experience has taught us that we cannot refer all cases to one set of causes. In the ankle-joint, for instance, the consideration of which by our author has led to these remarks, we cannot account for the successive implication of adjoining bones on the simple theory of some previous and neglected injury to one of them. Nor can we part easily with the old scrofulous diathesis, which so many now regard as a wild hypothesis, but suffering humanity has too often found to be a painful entity. We desire to guard these remarks by stating that Dr. Sayre, while holding largely to the traumatic origin of disease of the ankle-joint, does not question the importance of the influence exercised by an impaired constitution, or the scrofulous diathesis, where it exists. The method of treatment recommended for diseased

ankle-joint by extension, incisions into and setons passing through the joint, is pretty well known to the profession. While it may seem heroic upon first sight, yet the tedious and ofttimes unsatisfactory progress of such cases certainly makes these apparently vigorous measures excusable, and even commendable. The lecturer does not mention stimulating injections, which others have sometimes found of decided advantage in these cases.

The affections of the knee-joint are treated of in four lectures, space being devoted to them in proportion to their importance. Among the symptoms referred to by the lecturer as possessing special diagnostic importance, as being always present and continuing persistent after all other signs of joint disease have passed off, is the presence of pain, which can be elicited upon pressure over the coronary ligaments, more especially over the external one. While this symptom is present, Dr. Sayre says that the indication to continue treatment is very plain. By it, he thinks, we have a valuable guide to direct our course in convalescent cases, and that when it disappears, and not till then, we may discontinue treatment.

The treatment of white swelling of the knee, given by Dr. Sayre, has the same characteristics as that advised by him in disease of the ankle. First, and most important, is such an application of extension to the joint as can be maintained while the patient is going about. This is accomplished by means of our author's own devising, but which we doubt our ability to make clear to the reader without the diagrams, with which the book itself is plentifully illustrated. Strips of good sticking-plaster are attached longitudinally to the skin above and below the joint affected, and secured by a roller. The ends of the strips most distant from the joint, having been left free, are now attached to iron collars which encircle the limb above and below the articulation, and are themselves connected by firm lateral bars, which have a rachet arrangement. This rachet is then turned by a screw, and the joint surfaces being separated by the extension thus produced, the weight of the body is supported by the bars connecting the collars. With such an apparatus applied, the patient, being enabled to take exercise in the open air, is placed under the most favourable hygienic conditions. No one who has watched the gradual wasting, and the subdued hospital look acquired by these cases, from enforced confinement, will question the advantage certain to accrue from any form of dressing which will enable the sufferer to go about in the open air, and vary the monotony of the sick-room.

In the case of the ankle-joint, Dr. Sayre does not mention complete excision thereof, but speaks highly of partial sub-periosteal resection and gouging, when dead bone is present, with the insertion of a shred of oakum through the joint, fully opened, while the extension is persisted in. Such cases are pictured in the volume, but we must say we can hardly conceive of a person going about with a seton through the ankle-joint. Resection of the knee-joint is described, but in a somewhat summary manner, and partial excision is advised where practicable, while, as in the other joints, continued extension, with pressure, are the means principally relied upon. Partial resections were not at one time regarded with favour by operative surgeons, but the experience of our author, together with that of some others, would seem to point to the propriety of resorting to them more frequently. In this connection it is well to draw attention to the fact that pressure, by sponge applied dry and afterwards moistened, or, should the sponge not answer, by using a double India-rubber collar partly filled

with water, which can be distended by air, is very often resorted to as an important part of the treatment, both in the knee and ankle-joints. The remarks upon the proper management of a joint during convalescence are of especial value, but as there are two lectures entirely devoted to the consideration of anchylosis, it will be well to defer notice of them until these lectures are reached.

Morbus coxarius furnishes the theme for five lectures, or rather more than one-fifth of the entire book, and these lectures will be read with great interest by surgeons, not only on account of the intrinsic importance of the subject, but from the prominence heretofore given to it by our author.

As causes of hip-joint disease Dr. Sayre recognizes synovitis, rupture of the ligamentum teres, and rupture of vessels immediately beneath the articular cartilage, and he holds that all these causes are almost invariably the result of violence. There is not space to enter the lists with Dr. Sayre and present our readers with the pros and cons on this point, even were we so disposed, yet we cannot suppress our surprise that the assignment of the disease to some previous injury, on the part of the friends, should be adduced as an argument to prove the generally traumatic origin of these cases. The experience of the reviewer has been that parents and friends are exceedingly prone to regard some old or fancied injury as the starting point of any localized disease, so that he has long since ceased to attach much importance to the vast majority of such statements. That many cases of hip-joint disease have a traumatic orgin there can be no doubt, and to evidence the truth of this doctrine many and strong reasons are given by our author, yet we must say, as we did when speaking of the ankle-joint, that here also the middle ground seems to us the most tenable.

We would commend to the careful attention of the reader what Dr. Sayre says upon the symptoms of hip-joint disease as lucid and forcible in the highest degree, than which we do not remember anything written upon the subject more distinct and instructive. He thinks that spontaneous luxation of the head of the femur rarely, if ever, occurs, but says that when displacement does exist it is always attributable to unintentional violence in moving the parts at a time when the ligaments are weakened and disorganized. In an experience of fifty-nine excisions of the hip-joint, in only one was luxation present, and in that one it was directly traced to unguarded movement of the joint as mentioned above. The treatment pursued by Dr. Sayre consists in procuring good hygienic surroundings, with generous diet for the patient, continued extension by means of special splints which are accurately and fully described, together with the removal of dead bone through sinuses, or by resection when necessary. Our author thinks that early treatment by extension and rest will, in most cases, preclude from the necessity of resorting to operative interference.

Lecture XXIII. is concerned with the history of hip-joint exsection, the steps of the operation and several illustrative cases being given. Through the various procedures we shall not attempt to follow our author, who, while not the first surgeon to practise this operation, may be truly regarded as its father, having adopted it while it was very young. Dr. Sayre was the first surgeon in this country to resort to the operation for hip disease, and he has done most to procure its introduction to the profession, having far exceeded all others in the numbers of his recorded cases.

It is evident that whatever Dr. Sayre does, he does with his might, and

to his energetic advocacy of this operation we owe the establishment of it among the conservative measures of surgery. Of his method of performing the operation, it is only necessary to remind the reader that great care is used to preserve the periosteum, by which means a new joint is often secured. The special point in the after-treatment is the famous dressing known as the wire breeches.

The table of fifty-nine cases of excision of the hip appended to this lecture is well worthy of careful study. Of the entire list, thirty-nine were alive at the time of the publication of the lectures, while of the twenty which had died, but eight are regarded by our author as having succumbed to a continuance of the disease. Of the thirty-nine living cases, twenty recovered with motion and less than one inch shortening, eight with motion and more than one inch shortening, two had anchylosis, while nine were still under treatment and progressing favourably at the time of writing. Twenty-three of the whole number were females, and thirty-six were males. The limits of age were twenty-one months and thirty-two years, but much the larger number were under fourteen years of age.

That so serious a step as resection is one to which we can justifiably resort, is, in our opinion, established by the experience of our author and of those who have followed his leading. In no other way can relief to a distended joint be so effectually obtained, and by removing the head of the femur, we merely follow the line of nature's process and aid her efforts to get rid of the offending member. When the acetabulum is diseased, we question the propriety of such free use of gouge and forceps as is advised by Dr. Sayre, and, having provided ample way for the removal of debris by the discharges, would prefer there to stay our hand. Of the comparative freedom from danger of this operation, at least in children, there seems to be no question, and as we have seen marked benefit result in properly selected cases, we have no hesitation in recommending an occasional resort to it, while we agree most heartily with Dr. Sayre in thinking that early and careful treatment will, in the great majority of cases, do away with the necessity for this *dernier ressort.*

In taking leave of the subject of hip-joint disease, it is well to add that, in this review, no comparison has been instituted between the splints invented by Dr. Sayre and those designed by other surgeons. This has seemed advisable, inasmuch as the principles involved are the same in all, and the space at our command has been limited. Some may find in the Sayre splints all that they desire, and be able to accomplish the indications required with them, while others may prefer those of Dr. Taylor, or, like ourselves, think that those designed by Dr. D. Hayes Agnew, of Philadelphia, are at once the simplest and most manageable.

The next lecture treats of those affections which simulate morbus coxarius. Parallel tables of symptoms are given to make more clear the differential diagnosis, and while the statements are somewhat brief it may be read, both with interest and profit.

Antero-posterior curvature of the spinal column comes next under consideration. The methods of treating this affection are discussed at some length, but the new feature in connection with the subject is the plaster of Paris jacket, strongly recommended by the Bellevue professor. The patient is drawn out, or suspended until pressure upon the opposed bony surfaces is taken off, then plaster bandages are applied over a nicely fitting flannel shirt, from the middle of the pelvis to the axilla, and in this way an accurately fitting corset or jacket is obtained, which keeps up the

extended position, while the patient goes about. This is a new method with Dr. Sayre, but his experience in its use has been sufficient to make him almost enthusiastic in its praise. Should the constriction of the chest by this unyielding apparatus seriously impede respiration, the machine may be slit up a little in front, but in practice Dr. Sayre has found that sufficient respiration in a vertical direction is secured to obviate any necessity for this step. We should think that this plaster jacket, or some modification of it, would prove of much future value, and shall give it a trial at the earliest opportunity.

Anchylosis forms the subject of two lectures, the subject being treated somewhat in detail. Dr. Sayre, as is well known, is an advocate for the forcible rupture of the adhesions in cases where the anchylosis is fibrous. It may not be as well known that he adopts extraordinary precautions to prevent subsequent inflammation being set up by his manipulations. His directions to guard against inflammation consequent upon this proceeding are minute and strongly insisted upon. After the joint has been made thoroughly limber under an anæsthetic, a firm bandage is applied to the whole extremity, while the joint itself is carefully padded, so as to secure equable pressure, then a sponge is placed over the main artery above the articulation, and this sponge being moistened, is expected to aid in controlling the circulation in the neighbourhood of the joint. The patient is kept at perfect rest until the danger of inflammation has passed off, when the whole programme is repeated. We confess to a little fear of this sponge, though Dr. Sayre claims that its skilful use in his hands is unattended with danger. We forgot to state that the aid of ice is also called in. After our author's energetic denunciation of the term "massage," as foreign and quackish, we are amused to see with what persistence he clings to "brisement" and "brisement forcé" in describing his manner of treating these cases. Under the head of bony anchylosis, the usual operations are referred to, and some very interesting cases narrated.

Lecture XXIX. and last, treats of facial paralysis, torticollis, and deformities of the wrist-joint. The injurious effects of cosmetics are referred to by Dr. Sayre, when speaking of some of the cases of wrist drop from lead palsy he has been called upon to treat. Were women likely to take the advice of physicians when it is in the way of the pursuit of that beauty which is to secure the admiration of the opposite sex, we think "Laird's Bloom of Youth" would find its sale much diminished, for the doctor speaks of its poisonous effects with a vim and energy which is admirable. While we have little hope of any change in the habits of the fair sex, we would yet add our feeble note to enforce the clarion-like vigor of Dr. Sayre's condemnation of the whole class of such cosmetics.

The index furnished with this work is meagre and unworthy of the name, as it hardly differs from a table of contents. It is generally admitted, now-a-days, that a book of scientific pretensions should have an index, but four pages of titles can hardly be looked upon as answering the demand. In this so-called index are but two references under the word joint, but Laird's Bloom of Youth is again conspicuous. We must join issue with Dr. Sayre for his use of the term *contractured*, which is intended to take the place of structural shortening, as applied to muscles and tendons. The man who recklessly coins a word commits a crime against his native language, which is his to use, but not his to add additional burdens to. While in this country we can have no king's English, we certainly have a language which is the property of all the

people, and which no one is entitled to corrupt, nor can we admit the right of any man to manufacture and commit to print one barbarous term, that he may be saved the trouble of writing two acknowledged words.

Criticism upon the style and phraseology of these lectures is, however, disarmed by the statement that they are printed just as they were delivered at Bellevue Hospital Medical College during the session of 1874 and 1875, and were first read by their author in proof. While we cannot commend this method of preparing works for the press, we can but wonder at the ease and facility of diction possessed by the author, and must admit that the method, which would result disastrously in the hands of many, has, in those of Dr. Sayre, produced a most instructive and readable book. We hope that the distinguished author of this volume may yet find time to prepare a systematic treatise upon the subjects he is so well fitted to discuss. Meanwhile, no surgeon can afford to be without this most valuable contribution to our knowledge of orthopedic surgery and diseases of the joints.

S. A.

ART. XXVII.—*Reports of the Medical Officer of the Privy Council and Local Government Board.* New series, Nos. iii. and vi.

Report to the Lords of the Council on Scientific Investigations made under their direction in aid of Pathology and Medicine. Presented to both Houses of Parliament by command of Her Majesty. London: Eyre & Spottiswoode, Printers to the Queen's most excellent Majesty, for Her Majesty's Stationery Office, 1874 and 1875.

THESE two bulky volumes, forming part of the famous series of Parliamentary "Blue Books," afford most gratifying evidences of a wise and comprehensive recognition among English legislators of the vital importance, to each and every member in a body politic, of furnishing aid from the public purse, and by legal authority, for the purpose of extending our knowledge in medical science. As such we welcome them not only for the rich harvest of brilliant discoveries with which they are freighted, but also for the example of *both* penny- and pound-wise expenditure, in the interests of scientific medicine, which we ardently hope will soon be followed by our own national authorities. Indeed our government being "founded for the people," can in no wise fulfil the object of its very existence more efficiently, than by fostering in the most liberal manner such researches into the nature and cause of those diseases, which every year bring death into so many thousand households, and embitter the happiness of tens of thousands among "the people" who survive their attacks.

The first article appended to Dr. Simon's Report for 1874 is Dr. Burdon Sanderson's second paper on the pathology of the infective processes in which, starting with the conclusion arrived at in his report, "On the Intimate Pathology of Contagion," viz. that *all contagia are probably particulate*, he proceeds to give an account of our present knowledge as to the pathology of the infective processes in erysipelas, splenic fever, diphtheria and relapsing fever. Before entering upon a review of his essay, however, we should premise that he uses the term "microzymes" and "bacteria" as synonymous with Hallier's "micrococci," Kleb's "*microsporon septicum*," Heuter's "monads" and Billroth's *cocobacteria septica;* also

that he adopts the word *mycosis* "to indicate the infiltration of a living tissue with micrococci" (bacteria).

In true diphtheria as affecting the pharynx and air passages (which is distinguished from surgical diphtheria) it has been found that the interfascicular channels of the submucous tissue, and the lymphatics with which these canals communicate, are filled with a granular material, which, according to Nassiloff, is neither fibrin nor detritus, but consists mainly of micrococci, so that "the changes which occur in faucial diphtheria are probably dependent on the occupation of the channels of absorption by masses of vegetation."

In order to prove that this vegetable growth is the existing cause of subsequent changes, numerous experiments have been made, the general plan of procedure followed by Nassiloff, Oertel, Eberth, etc., being to puncture the corneæ of rabbits, with needles charged with minute particles of false membrane from faucial diphtheria, the other eye being punctured in the same way with a clean needle, in order to compare a fresh traumatic injury, with the infected wound. After two or three days brownish-yellow streaks seen in the diphtherized cornea, were found on microscopic examination to be due to the filling up of canaliculi with micrococci.

Dr. Sanderson sums up the evidence from these experiments with the remark, that the subject is still in some obscurity, although it is of moment to have learned "that forms of micrococci exist, which possess the power of colonizing in living tissues, and thereby inducing a variety of inflammation, which is distinguished from others by its tendency to result in disintegration; and that this faculty of originating disintegrative inflammation, is possessed by them independently, *and can be exercised without the concurrence of any previously existing morbid process.*" Dr. S. declines to accept the statement of Letzerich and Oertel, since embodied in Ziemssen's Encyclopedia, as establishing beyond doubt the specificity of the so-called diphtheric fungus.

Passing on to the subject of erysipelas, our author quotes from the researches of Volkmann and Steudener, in regard to the pathological histology of this disease, as showing that the chief seat of corpuscular infiltration, by migratory white blood corpuscles, is not the cutis but the subcutaneous cellular and adipose tissues; and then proceeds to recount the investigations of Orth of Berlin and Lukomsky under v. Recklinghausen at Strasburg. These observations made upon five patients and numerous rabbits, frogs, etc., show that the interfascicular canaliculi and the lymphatic channels into which they empty, are found at, and just beyond the margin of an actively spreading erysipelas, plugged up with micrococci which in some instances were met with also in the capillaries and blood serum near the focus of disease. (These discoveries find a curious and interesting confirmation in the remarkably successful treatment of erysipelas with sulphite of soda solution, advocated some years since by Dr. Addinell Hewson, of Philadelphia.)

Dr. Sanderson prefaces the second part of his report with the statement that "there are four contagious diseases, in respect of which the presence in the contagious liquids, of forms of vegetation differing from those met with either after death in the normal tissues or liquids of the body, or during life in the products of primary or secondary inflammation has uɔɔq established. These are smallpox, sheep-pox, splenic fever, and relapsing fever."

The credit of first observing organisms in the lymph of cow-pox and

smallpox is given to Keber of Dantzic, no notice being taken of the claim of Prof. Salisbury, of Cleveland, Ohio, that he had recognized the existence of a vegetable organism as the cause of smallpox so early as the year 1862. This fungus he afterwards named *Ios variolosa variola*. A lengthy paragraph quoted from Prof. Cohn, describes the organisms detected by Keber as spheroidal corpuscles about $\frac{1}{3300}$ of an inch in diameter, difficult of detection except when well illuminated under immersion lenses of high power. These spheroids rapidly multiply, giving rise to dumb-bells and chains of four or eight, which soon break up and become aggregated into colonies of sixteen, thirty-two, or more corpuscles somewhat resembling sarcina.

Reference is also made to the observations of Weigert, who proved the existence of similar micrococci in the lymphatics adjacent to pustules of a patient dying of variola, but, as Dr. Sanderson judiciously observes, it is chiefly by such investigations as those of Dr. Klein upon sheep-pox (*vide infra*) that we can obtain adequate proof of a theory that these micrococci are the *contagium vivum* of smallpox, and possess the property of reproducing or propagating the disease.

The staff-shaped organisms met with in the blood of cattle affected with milzbrand or splenic fever, are stated to have been first discovered in 1855, but their exact importance is still undetermined. It is true that we can entertain no doubt, that the injection into the bodies of healthy cattle of blood containing these rod-like bacteria, will produce splenic fever, but on the other hand, we are almost equally certain, that blood from a diseased animal, wherein no such bacteria and micrococci are apparent, may produce a like infection. It seems probable, however, from the experiments of Klebs and Kegel, that poisoned blood from which the fungous elements have been removed by filtration through unglazed porcelain, is no longer capable of causing the disease. Dr. Simon shows how completely the phenomena of the contagion in this complaint, viz. the short period of its active infectiveness, and yet the long time during which it may remain dormant, but still reappear, correspond to the rapid disintegration of the staff-shaped bacteria, and the existence of lasting or resting spores (Dauer sporen) as described by recent mycologists. He also points out how great additional importance the study of Milzbrand has acquired since the cases of *Mycosis intestinales* in human beings reported by Buhl, Waldeyer, and Munch, and regarded by them certainly, and by Dr. S., as probably identical with splenic fever.

Dr. Obermeier, of Berlin, in 1872 first announced the presence of spirilla in the blood of relapsing fever, and established their close relation to the pyrexia of that disease. His researches were amply confirmed by Dr. Litten, of Breslau, who reports 448 cases, in over 100 of which spirilla were found in the blood. These organisms generally appeared a day or two after fever set in, and ceased to be visible a few hours before defervescence. In numbers they varied from one in several slides, to several in each field of the microscope. In shape and size, they seem to have been often identical with spirillum as found in the oral cavity, and their activity of movement, varied with the period of pyrexia, being energetic in its early and middle stages, but languid towards its close. One suspicious statement is that they often assumed peculiar forms, such as circles *resembling blood disks*, etc., and suggests to the experienced microscopist, a kind of error, which has misled many honest but too enthusiastic observers.

Dr. Klein undertook the study of the minute pathology of sheep-pox,

because it very closely resembles human smallpox, and yet affecting one of the inferior animals, affords facilities for investigation, unattainable in the latter malady. The method adopted consists in inoculating sheep at various points by means of a hypodermic syringe, and also in producing a general infection, by injecting virus into the circulating blood. In a preliminary examination of the fresh lymph, he determined the existence of highly refractive spheroids (micrococci) which developed after a few hours or days, into dumb bells, chains, necklaces, mycelial threads, and colonies, these last corresponding to the Zooglæa of Cohn. The changes which he observed, and has figured very minutely, are thickening of the corium, germination of the deep epithelial layers, and of the endothelium of the bloodvessels, and dilatation of the lymphatics and the afferent canaliculi. These channels soon become filled with micrococci and mycelial threads, which latter after a time send forth filaments terminating in well characterized gonidia. The so-called cells of older authors in the pock, are dilated dropsical cell-elements which for a time are the seats of fungous growth, and finally when they communicate become filled with pus corpuscles, which migrate from the deeper layer of the corium.

This paper is profusely illustrated with drawings by Dr. Klein, which seem to show the correctness of his statements, and yet are widely open to the same kind of pitying or sarcastic comment, in regard to the author's credulity respecting what he *thought* he saw under the microscope, which in former years was heaped upon similar pictures, in the works of Salisbury of Cleveland, and Hallier of Jena.

The third report on anatomical researches into the lymphatic system and its relation to tubercle, also by Dr. Klein, opens with an investigation into the normal histology of the pleura and peritoneum, confirming and extending the researches of Recklinghausen and others, who have established the existence of lymph canalicular spaces between and beneath layers of endothelial cells; he also corroborates previous views in regard to the existence of lymphatic trunks and lymphatic capillaries, the former provided with valves and lined with spindle-shape epithelium. Further, he figures and describes minutely the stomata and pseudostomata, by which directly and indirectly communication takes place between the free surface of the serous membranes, and the lymphatic system.

Dr. Klein next proceeds to examine the effects produced in the process of artificial peritonitis in rabbits, etc., which, if not too intense, is as follows: The germinating endothelium, normally met with around the stomata and pseudostomata, grow out abundantly in bud-like processes, proliferating cells of which arrange themselves into cords which extend freely over the surface of the peritoneum.

In the chronic peritonitis of tuberculized animals, this condition of endothelial germination, limited especially to the margins of the stomata, communicating with the straight lymphatics, is even more marked; not only do these endothelial cells enlarge, become distinctly granular, present nuclei in the act of division, and germinate so as to produce lymphoid cells, but after a time this change gradually spreads to the endothelial cells of the neighbourhood, as well as to those of the vertical lymph canals, and to those of the lymphatic capillaries, into which these lymph canals open.

The abdominal surface of a diaphragm, furnished with abundant nodules of tubercle, may exhibit many varied stages of development in the germinating endothelium of the stomata, from small buds to large patches.

A similar study of the pulmonary organs affords us a view of analogous systems of lymph canals and canaliculi, emptying into the perivascular lymphatics, which ramify, in company with the bloodvessels, throughout the lung tissue. When artificial tuberculosis is set up, the pulmonic pleura becomes the seat of nodules, due to rapid germination of the branched connective-tissue corpuscles. Later on, superficial nodules appear in the lungs, which are in direct continuity with the subpleural lymphatics; still later, the process extends, so that the lymphatics of the affected portions are converted into endolymphangeal cords, constituting interalveolar trabeculæ of adenoid tissue. Dr. Klein thinks that in guinea-pigs, at least, the first step of tuberculization occurs in the ultimate branches of the pulmonary artery, the endothelium of which germinates and encroaches upon the lamina of the vessels. The morbid process then extends to the perivascular lymphatics, whose endothelium in turn, germinating and growing inward, at length closes up the vascular channels. Finally, by further extension of the process, proliferating epithelium in affected air-vesicles forms secondary nodules containing giant cells. These may rapidly undergo caseous degeneration, which never takes place in the perivascular cords or their primary lateral nodules. From a comparison of experiments with three series of cases of natural human tuberculosis, our author concludes that the pathological histology of tubercle in man differs from that of the analogous process in guinea-pigs in that the capillaries of the alveoli seem to be first affected, this being followed by germination of the epithelium of the alveoli and connective-tissue corpuscles of the alveolar septa, and still later by the formation of perivascular lymphatic cords made up of endolymphangeal growth.

In the fourth of these contributions to medical science, Dr. Creighton reports his results, as far as then obtained, in an effort to determine the process of infection, as occurring during the development of secondary carcinomata, sarcomata, and lymphadenomata. He selects as his field of study new formations in the liver, and founds his paper upon observations upon ten cases of hepatic tumours from human and animal subjects. Unfortunately, none of these specimens were examined in the fresh state, their characters being only investigated as modified by long immersion in spirit and mounting in balsam. Dr. Creighton advances a theory in opposition to Virchow's, that liver cells themselves, and not the connective-tissue cells of the organ, are the elements which undergo transformation in the heteroplastic growths. Further, that this transformation consists in the production of vacuoles in the hepatic cells, in which vacuoles develop small, round cells (by endogenous cell formation), which grow into giant cells, or proliferate into the cell nests of carcinoma. In this way a metaplastic, or heteroplastic, instead of a normal plastic activity of the cellular elements, is introduced. Our author seeks support for his theory in the facts, that vacuolation takes place in a fertilized ovum, in spermatozoid-bearing cells, etc.; but his chain of reasoning, being occasionally interrupted by such imperfect links as "there is nothing hazardous in supposing," wants logical sequence; and, remembering that he has never taken the trouble to examine the vacuoles, which play such an important rôle in his plan of metamorphosis in a recent state, and only makes a bold guess that, whilst fresh, they were filled with fat, we feel inclined to render the Scotch verdict of "not proven," in regard to this portion of his work.

The fifth and last paper of the volume is an elaborate article by Dr. Thudicum, designed to form part of a basis for the scientific study of the chemical pathology of the nervous system. His observations made upon upwards of one thousand ox brains, which were carefully comminuted, exhaustively extracted with alcohol, ether, etc., and the resulting extractives and *residua*, tortured with a vast array of reagents; detail the mode of production, and more or less briefly the properties of some seventy educts and products yielded by the brain of man and animals. Although chiefly useful, of course, to the specialist in chemical pathology, Dr. Thudicum's investigations are not without practical value to the general practitioner, as is illustrated by the suggestion on p. 200, "that the so-called brain fungus, the continued protrusion of brain matter through apertures of the skull, produced by mechanical injuries, may in certain cases find a physical explanation, in simple excessive hydration of the phosphorized (and nitrogenized) principles, producing general intracranial pressure."

The sixth number, fully equal to its predecessors in practical value, commences with a report of Dr. J. Burdon Sanderson on the Process of Fever, a subject which, whilst it has been a subject of almost hourly study for at least two thousand years, still remains shrouded in mystery. The essay opens with a *resumé* of Dr. Senator's observations and experiments upon dogs, in which an artificial pyrexia was produced, by the subcutaneous injection of perfectly fresh pus, in order to determine the amount and manner of the consequent disintegration of tissue. The results arrived at are that "fevered dogs lost on the whole from 3 to 4 per cent. of their weight during the first 24 hours of fever. Healthy dogs in the corresponding period of inanition lost about 1.6 per cent. As there was certainly no increase of carbonic acid discharge, this must have been chiefly due to loss of water." This conclusion does not seem to hold good as regards fever in human beings, although precise clinical investigations are not yet numerous enough to determine a negative with certainty.

Passing over some interesting observations upon the production and discharge of heat in fever, we find that Dr. Sanderson concludes that a satisfactory explanation of fever and its process is not yet possible, although enough is now known, to lead us to reject a favourite hypothesis of the day, that fever originates in disorder of the nervous centres, the influence of the nervous system controlling or restraining the liberation of heat at the surface of the body, so that by retention the temperature rises; and that this increased temperature so produced, acts on the living substance of the body, in such a manner as to disorder its nutrition. The alternative theory, namely, that fever originates in the living tissues, is from first to last a disorder of protoplasm, and all systemic disturbances are secondary, our author thinks is the basis on which, after the normal relation between temperature and thermogenesis is determined, we may hope *eventually* to construct an explanation of the process of fever.

Dr. Sanderson also contributes to this volume two reports of an experimental study of infective inflammations. The first of these, which has been before the profession for two or three years (vide *Transactions Royal Med. and Chirurg. Soc.*, vol. lvi.), comprises numerous experiments and observations from which Dr. S. concludes "that that combination of malignant fever with intense and destructive inflammations, to which pathologists have rightly applied the term septicæmia, because it is known by experiment as well as by clinical observation, to result from the existence

in the blood of putrescent albuminous matter, may also be produced by the introduction into the circulation, or into the serous cavities, of small quantities of liquids derived directly from living tissues, in certain states of inflammation; and that such states have the same distinctive characters, as those which distinguish inflammation of septicæmic origin. (2) That pyæmia (the term being understood to denote a general febrile disorder of less virulence than that of septicæmia, accompanied by numerous disseminated inflammations, characterized chiefly by their proneness to suppuration) is so closely related to septicæmia, as regards its origin and essential nature, that in these respects no line of distinction can be drawn between them; and that pyæmia, like septicæmia, may originate from a purely traumatic inflammation, independently of any infection with contagium derived from a previously existing pyæmic inflammation. (3) That both of these conditions are characterized by the existence of microzymes (bacteria, micrococci) in the infected liquids; and that the relation of intensity between different cases of septicæmia, and pyæmia infection, is indicated by the number and character of these organisms; so that in the most intense processes, *i. e.*, those which exhibit the characters of septicæmia, the exudation-liquids and the blood, are crowded with actively moving bacteria, while in the more chronic processes, the spheroidal and dumb-bell forms prevail, and the numbers of the organisms found in the liquids, are relatively inconsiderable."

In his report for 1875, Dr. Sanderson states, that, certain observations having indicated, that in the transmission of infective inflammation through a series of animals, an augmentation of infective activity takes place, he undertook numerous investigations to determine the circumstances under which this intensification occurs. The general plan of these experiments will be seen from the following example. "Primary peritonitis was induced on the 3d of February, 1875, by the subcutaneous injection (into the peritoneal cavity of a guinea-pig) of four cubic centimetres of a mixture of nine parts of distilled water, with one part of liquor ammonia. The liquid was boiled and cooled. Twenty-four hours afterwards, a large quantity of subcutaneous exudation liquid was obtained from the moribund animals, of which 1.62 c.c. were injected to the next in the series (No. 2). From No. 2, which died during the following night, peritoneal exudation liquid was injected into the peritoneum of guinea-pig No. 3, the dose being reduced to 0.486 c. c. Similarly No. 4 was injected from No. 3, and No. 5 from No. 4. In each of the three last-mentioned animals, the process was extremely rapid, so that it was difficult or impossible to make useful comparisons of their conditions during life." (The experiment was continued, however, to the 7th guinea-pig, and two dogs were also infected with analogous results.)

Our author concludes that a *phlogogenic* inflammation (one which produces an inflammation which is similar in character to that of which it is itself the product) becomes more intense by transmission, and that intensification of malignity is not gradual but *per saltum*. Further, that the most active products in these cases are yielded by animals which have longest resisted the most intense process (the organism of a dog proving to be as averse from infection as that of the guinea-pig is prone to it). The intensely infective serous exudations of guinea-pigs are distinguished by their high specific gravity, peculiar viscidity, and "by the presence of the spheroids and dumb-bells" (micrococci), "so often referred to, either isolated in the liquid, collected in cloud-like masses, or embedded in the cell substance of pus corpuscles."

Lastly, Dr. Sanderson very prudently remarks: "I think it desirable to repeat what I have often had occasion to insist on elsewhere, that the presence of characteristic organic forms in infective liquids affords *in itself* no conclusive evidence that these bodies are in themselves the cause of the infectiveness. If we infer from the constancy of their characteristics and from their invariable presence that they are the agents which produce the pathological results, we might be as seriously in error as those are who maintain, in the face of all the investigations relating to the subject made during the last few years, that they are without pathological significance. There is nothing in nature, and particularly in organic nature, without significance, nor ought it in the slightest degree to diminish the interest which we take in any phenomenon, that we are unacquainted with its relation to the other phenomena with which we find it associated. If these infinitely minute organisms are present in every intensely infective inflammation, we may be quite sure that they stand in important relation to the morbid process."

In the third article Dr. Klein gives a most important and conclusive report on the Intimate Anatomical Changes of Enteric Fever, in the course of which he claims to have discovered the true contagium of this disease in a peculiar vegetable organism, apparently identical with Crenothrix polyspora (Cohn). This claim is warmly endorsed by Dr. Simon, who remarks that "we may at least accept, as approximatively proven, that the contagium of enteric fever has its essence, or part of its essence, in the microphyte which Dr. Klein has discovered." He seems, however, to be quite ignorant of the fact, that Prof. Salisbury, of Cleveland, in 1868, described, figured, and named, a fugous growth (*Biolysis typhoides*, Salisbury), which develops on and in the intestinal mucous membrane, "and especially flourishes with great luxuriance in the agminated, and solitary glandules of Peyer." (*Microscopic Examination of Blood*, New York, 1868, p. 62.) Dr. Klein's essay is illustrated by a large number of elaborate and beautiful drawings from his pencil, which only require that they should be copies of micro-photographs, to carry strong conviction even to the minds of leading sceptics, as to "the production of general diseases by organic entities." For the details of his investigations we refer our readers to the *Monthly Abstract of Medical Science* for May, 1876.

Dr. Creighton's further research towards the etiology of cancer bears the impress of more experienced and thorough study, than was expended in the observations recorded in a previous year, and comprises a most important and elaborate examination of the evolution and involution of the mammary gland, proceeding and succeeding lactation. For this the profession owe him a real debt of gratitude, and his earnest and ingenious efforts to deduce from these physiological processes conclusions which shall bolster up his favourite theory, commands at least our admiration. Adopting the doctrine that the secretion of milk during its subsidence, in a mammary gland undergoing involution, is demonstrably a process of vacuolation of the glandular-epithelium (production of signet-ring cells), he asserts, that this vacuolation is really *endogenous cell formation*, and further maintains, that near the close of the involuting process, this endogenous cell formation results in the production of solid yellow granular protoplasm instead of lacteal fluid. In this way are formed what our author calls *the very remarkable large yellow pigmented cells*, which constitute, he says, the waste products of the process of involution during its last stage, are normally removed by means of the lymphatic circulation,

and, after undergoing purification or rejuvenescence, are utilized as white blood corpuscles (!). Finally, from observing in certain mammary tumours these large yellow pigmented cells, arranged in rows and alveolar groups in the extra-acinous fibrillar tissue, where they occupy the interfascicular or lymphatic spaces, he arrives at the "strongest presumption that the cells of the scirrhus, are of the same origin and subject to the same influences as the pigmented cells, which are known beyond all doubt to be the waste products of a feeble degree of the secretory activity." As substitutes for Virchow's doctrine of the origin of cancer cells (from proliferating connective tissue corpuscles), we have, therefore, that of Koster, (from germinating endothelium of lymphatic channels), that of Classen (from emigrating white blood corpuscles), and thirdly, that at present under consideration (from yellow pigmented cells and their derivatives). Whilst this latter theory seems to us less probable than either of the others, it certainly merits, and we trust will receive, the careful examination of pathologists and microscopists generally.

Dr. Thudicum's researches in physiological chemistry, are represented in this volume by a brief "provisional statement" in regard to new alkaloids found in muscular tissue, milk, urine, etc., which, in the present form, possesses little of general interest to medical practitioners, but the sixth and last paper by Dr. Baxter, giving the results of his experimental study of certain disinfectants, has such a real and practical value that, though we regard the limits of this notice already, perhaps, overstepped, permit us only to epitomize his more important conclusions, which he does not claim are altogether final.

1st. Carbolic acid, sulphur dioxide, potassic permanganate, and chlorine, are all true disinfectants but in various degrees.

4th. The presence of *free* chlorine or *undecomposed* permanganate, in a liquid to be disinfected, after chemical action has ceased, when these agents are used, is the only assurance that disinfection is accomplished.

5th. A virulent fluid must be rendered strongly acid by sulphur dioxide to insure its disinfection thereby.

6th. At least 2 per cent. by weight of pure carbolic acid must exist in a virulent liquid to secure its disinfection by this agent.

8th. Aerial disinfection, as commonly practised in the sick-room, is either useless or positively objectionable, owing to the false sense of security it is calculated to produce.

9th. Aerial disinfection can be best obtained by saturating the space to be disinfected with chlorine, or preferably sulphur dioxide, for at least an hour, and this in the absence of such gaseous compounds, as might combine with or decompose the disinfectant, and so far impair its energy.

10th. When thorough disinfection of a mass of solid or liquid matter is impracticable, since all contagia probably disappear sooner or later under the influence of air and moisture, we must be careful not to hamper this desirable process of decay, by the injudicious use of antiseptics.

11th. Dry heat applied with due precautions is probably the most efficient of all disinfectants.

And yet, after all, in the words of Dr. Simon, which close this useful brochure, "it is to cleanliness, ventilation, and drainage, and the use of perfectly pure drinking water, that populations ought mainly to look for safety against nuisance and infection. Artificial disinfectants cannot properly supply the place of these essentials; for, except in a small and peculiar class of cases, they are of temporary and imperfect usefulness."

J. G. R.

ART. XXVIII.—*Clyclopædia of the Practice of Medicine.* Edited by Dr. H. VON ZIEMSSEN, Professor of Clinical Medicine in Munich, Bavaria. Vol. IV. *Diseases of the Respiratory Organs.* By Dr. FRAENKEL, of Berlin; Prof. VON ZIEMSSEN, of Munich; Prof. STEINER, of Prague; Dr. RIEGEL, of Cologne; and FRAENTZEL, of Berlin. Translated by J. Burney Yeo, M.D., of London; J. Solis-Cohen, M.D., of Philadelphia; A. Brayton Hall, M.D., and George M. Lefferts, M.D., of New York; and Edward W. Schauffler, M.D, of Kansas City. ALBERT H. BUCK, M.D., New York, editor of American edition. 8vo. pp. xix., 805. New York: William Wood & Co., 1876.

THE present volume of this valuable series contains articles on almost all those diseases of the respiratory organs not discussed in Volume V., which was noticed in the last number of this Journal. It, therefore, includes chapters on Diseases of the Nose and Pharynx, by Dr. Fraenkel; on Diseases of the Larynx, by Dr. Von Ziemssen; on Croup, by Dr. Steiner; on Diseases of the Trachea and Bronchi, by Dr. Riegel; and on Diseases of the Pleura, by Dr. Fraentzel.

It may, indeed, be a question whether the discussion of diseases of the nose would not be more appropriate in a treatise on surgery than in one on the practice of medicine, since when at all severe they but rarely continue under the physician's care. They are often, however, even in their milder forms, very troublesome to the patient, and occasionally a source of mortification to him, and of annoyance to his friends. We think that Dr. Zeimssen has, therefore, done wisely in devoting a large portion of the present volume to their consideration. The task of describing them has been consigned to Dr. Fraenkel, a gentlemen whose name is doubtless familiar to many of our readers through his contributions to the medical journals. It would, of course, be impossible to follow Dr. Fraenkel through his description of the various forms of apparatus used in the examination of the nose and pharynx, and, in fact, this would be unnecessary, as all the apparatus he recommends for this purpose is already in use by specialists in this country.

Although diseases of the nose are rarely the direct cause of death, they not infrequently interfere with nutrition by interposing an obstacle to the proper performance of the respiratory function. This is especially the case with children at the breast, who are, as is well known, often prevented from suckling in consequence of closure of the nostrils. But the impossibility to breathe through the nose will often also interfere very materially with their sleeping. Kussmaul has shown that in young healthy infants the mouth is generally closed during sleep, or, if open, takes no part as an air-passage, because the tongue lies in contact with the hard palate. If, therefore, the nose becomes obstructed through coryza, or from some other cause, it is very easy to understand that dyspnœa must occur and continue until the tongue learns to abandon its physiological position.

The attacks of asthma, which so frequently accompany tumours of the nose in adults, are not so easy to explain. They are probably due to reflex action, as Kratschmer has proved that an irritant acting upon the Schneiderian membrane produces a narrowing of the nostrils, and an arrest of breathing in the act of expiration, as well as an arrest of the heart's action, which is followed by a series of retarded pulsations. This reflex action originates, not in the olfactory, but in the trigeminus nerve. The

tumours, moreover, especially during sleep, prevent the free access of air to the lungs, and consequently the proper interchange of gases in the lungs —a condition which, according to Hænisch, favours the occurrence of reflex action.

Another subject which Dr. Fraenkel discusses at some length is the contagiousness of coryza. Without positively committing himself, he evidently leans very strongly to the opinion that it may, under certain circumstances, be communicable, although he admits that up to this time all efforts to inoculate it have been fruitless. On the other hand, he says the nose shows itself unequivocally susceptible to the contagion of gonorrhœal matter, and he is inclined to think that the coryza of new-born children originates in the same way as *ophthalmia neonatorum*, that is, through infection of the nasal mucous membrane by the vaginal secretions of the mother during birth. In all cases, he adds, of coryza neonatorum that he has investigated, he has been able to show the existence of leucorrhœa in the mother.

"It appears, then," he says in conclusion, "that the nose does not differ from other mucous membranes in the capacity for being infected by secretions. Nor is there any ground for considering the secretions of the Schneiderian membrane as less infectious than those formed elsewhere. The question of the contagiousness of coryza, then, in spite of the negative result of experiments, must be considered as one and the same with the question of the contagiousness of catarrhal or purulent secretions in general, and in the light of clinical observations must, for the present, be answered in the affirmative; especially as regards purulent secretions."

Dr. Fraenkel recommends that coryza should never be neglected, as it is apt to be by physicians generally, who regard it as too trivial an affection to demand much notice. When it becomes chronic it is much less amenable to treatment than in the acute stage, and if allowed to run on it often induces a very much impaired condition of health, which will generally continue until after the disappearance of coryza. The treatment he recommends for its relief is very much the same as is in use here, and, therefore, does not call for special commendation herein.

The chapter on diseases of the larynx, by Von Ziemssen, posseses particular interest for the specialist. The general practitioner will, perhaps, on the other hand, agree with us that the author attaches too much importance to the use of the laryngoscope; urging a recourse to it even in cases where the general and local symptoms would seem to indicate with sufficient clearness the nature of the disease, and where it can scarcely aid us in the treatment. Unquestionably the laryngoscope has been of immense service to us in the study of the pathology of the larynx, but its use requires great skill on the part of the operator, and also some tolerance on the part of the patient, who frequently has to be gradually accustomed to its introduction into the throat. In acute cases, therefore, where it is especially liable to cause irritation, it need scarcely be resorted to. The ophthalmologist, too, will, we think, be disposed to dispute Von Ziemssen's assertion that, great as have been the improvements in diagnosis and treatment effected by the ophthalmoscope, they are scarcely as striking as those gained by the laryngoscope.

Dr. Steiner, who is the author of the article on Croup, rather surprises us by saying, in one place, that croup and diphtheria are "only varieties and modifications of one and the same process, which, in consequence of special influences and collateral causes, as yet imperfectly understood, makes its appearance at one time as croup, at another as diphtheria—now in a sporadic form, now as a wide-spread epidemic, now as a primary, and

now again as a secondary affection." And then a few pages further on, that "primary true croup is not a contagious disease," while "diphtheritic croup possesses this quality in a marked degree." If this opinion be correct, and we think the weight of testimony is in favour of it, there is here ground enough for distinction. The virulence of contagion may be modified by circumstances, but it is inconceivable that a contagious disease should ever wholly lose the power of propagating itself.

Dr. Steiner is an advocate of the view that there is a certain hereditary and family disposition to croupous inflammation in general, and to laryngeal croup in particular, instancing two families, in one of which all four, and in the other all three children died of membranous croup, within five years in one case, and within four years in the other. He regards the dyspnœa of croup as the combined result of several causes acting together or in succession. The most important of these he believes to be the mechanical one, viz., the swelling, relaxation, and intense congestion of the mucous membrane of the larynx on the one hand, and the false membranes and the muco-purulent secretion on the other. But a part of the dyspnœa, he thinks, is to be ascribed, in many cases, to the false membranes and to accumulations of muco-pus situated in the lower air-passages. The correctness of this conclusion is shown by the fact, that after tracheotomy the dyspnœa sometimes continues to be as urgent as before, although the larynx no longer takes part in the respiratory process. To these purely mechanical causes may be added another of subordinate importance—the paralysis of the laryngeal muscles.

Dr. Steiner apparently adopts E. Wagner's views in regard to the histology of the croupous exudation. The membrane, he says, "as it begins to form, is composed of a thick network of delicate, very fine threads, whose interstices are occupied by numerous bodies essentially like ordinary pus-corpuscles. This network is produced in croup, just as in diphtheria, by a peculiar metamorphosis of the epithelial cells, which consists in the cells at first becoming enlarged, and then developing long prolongations, by the coalescence of which a network is formed, which acts as a matrix for the newly-formed cells. According to F. Steudener, on the other hand, the croupous membrane consists of an exudation produced by the migration of numerous white corpuscles from the vessels of the mucous membrane, and the direct formation of fibrine from the transuded blood-plasma. The author also refers to the opinions of Oertel, Hallier, and others—only, however, to condemn them.[1] These gentlemen, it will be remembered, believe that they have discovered the nature of the croupous diphtheritic exudation in the generation of fungi; but Dr. Steiner regards the presence of these fungi upon the exudations as only accidental, and not as an essential part of the disease.

When speaking of the diagnosis of croup, Dr. Steiner says: "Experience shows that children who are subject to attacks of hoarseness and barking cough after catching cold, almost never suffer from genuine, but often from false croup." If this be really so—for, we confess, we have doubts of its absolute correctness—we certainly have in it a valuable aid in distinguishing the two affections.

We do not find much to comment upon in the author's remarks upon the treatment of this disease. He recommends, as soon as a membrane is detected in the throat, the use of gargles containing from 12 to 50 grains

[1] See notice of the first volume of this series in the number of this Journal for April, 1875.

of chlorate of potassa to the ounce, according to the age of the patient. If he be too young to gargle, the above-mentioned fluid may be injected into the throat, or the parts may be touched with lunar-caustic. The author also speaks favourably of various remedies which are believed to act as solvents of the membrane, but condemns the abstraction of blood either generally or locally by means of leeches. On the other hand, he considers that an antiphlogistic effect is produced by the rational use of cold, preferably in the form of frequently changed cold compresses about the neck, which are to be kept applied as long as the disease presents the character of an inflammation, or the exudation continues to spread. Their use should be discontinued as soon as the symptoms of carbonic acid poisoning or depression occur. Mechanical emetics are also recommended with a view of bringing about a dislodgment of the false membrane. They should be given in full doses, and repeated every fifteen minutes until they have operated freely. Dr. Steiner says, that, notwithstanding that he has given with this view large doses of copper and antimony, he has never known gastritis produced by them. Croupous diphtheritic gastritis may occur as a complication of croup, but it has no connection with the use of emetics.

As soon as symptoms of carbonic acid poisoning appear, the author recommends us to have recourse at once to tracheotomy, believing that very often the operation is so long deferred that the time when it will be of service is allowed to slip by. In addition to establishing a provisional air-passage while the danger of death from laryngeal stenosis lasts, he tells us that "when properly performed, *tracheotomy may be a safeguard* against the further spread of the croupous process.

Dr. Riegel's contributions to this volume include an article on bronchial catarrh, which, although exhaustive, we shall not notice in detail, simply because the frequency of the occurrence of this disease renders it difficult to say anything concerning it which would be new. He gives the following explanation of the process of "catching cold"—an expression which is often used without a very clear idea of its meaning. The experiments of Rosenthal have shown "that if the heated body, with its enormously dilated superficial vessels, is suddenly exposed to cold, there is not only a considerable amount of heat abstracted, but the blood of the superficial parts of the body so suddenly cooled now courses through the internal organs, and cools these off much more suddenly than would be the case from the simple influence of cold without the previous influence of greater heat. The cooling off, therefore, is not only more considerable, but also much more rapid. This sudden cooling may then, in itself, act as an injurious influence, and excite a disease in this or that organ, especially if it is already enfeebled, and hence less resistant."

According to our author, comparatively more legitimately born children die of respiratory diseases in the first year of life than illegitimate children. While not overlooking the fact that the latter class, in consequence of inherited vices of constitution, succumb in greater number to diseases of mal-nutrition, he ascribes this preponderance of respiratory diseases amongst the more favourably placed legitimate children to the too great care which is exercised by anxious mothers to guard them against cold, by which their resisting powers are materially diminished.

In the treatment of bronchitis, especially when the tubes are filled with liquid which the patient has not strength to expectorate, Dr. Riegel recommends the use of emetics, among which he has found the muriate of apomorphia especially useful, possessing the advantage over most of the

others of its class of being capable of subcutaneous administration. It acts very promptly, he says; is always certain, and does not produce much nausea. Besides this, there are no unpleasant after-effects from it, the last trace of any disagreeable sensation passing off in the course of a few minutes. These properties render it a very useful remedy in the treatment of croupous bronchitis, in which disease the author specially recommends it. He also advises the use of cold water externally whenever the thermometer indicates the presence of a high degree of fever.

Dr. Riegel apparently adopts Kretschy's view that the membrane in croupous bronchitis "is formed by the transudation of a fluid albuminous substance (fibrin) hardening rapidly after its secretion, and the exudation of white blood-corpuscles, and that it is not due to a peculiar metamorphosis of the epithelium of the bronchial mucous membrane, in which the epithelium forms the cellular elements by endogenous formation of new cells, and the fibrinous framework out of the remaining cellular substance." In addition to emetics the author recommends the employment of remedies calculated to soften and loosen the false membrane, such as inhalation of lime-water, lactic acid, and the carbonates of the alkalies. He refers favourably to the use of iodide of potassium for the same purpose. Patients who have shown that they are liable to attacks of this kind should be carefully guarded against exposure to all the causes of bronchitis in general, and should take remedies applicable to scrofula, anæmia, and so forth, if any one of these conditions be present. There are, however, no means known by which attacks can be certainly prevented.

It would carry us far beyond the limits assigned to this notice were we to attempt to follow Dr. Riegel through his elaborate discussion of the various theories which have been proposed to explain the occurrence of bronchial asthma. Without definitely announcing his adhesion to any one of them, he gives us good reasons for preferring that which refers the symptoms to spasm of the bronchial tubes, which has recently found an eloquent champion in Biermer, and which is, on the other hand, opposed by Wintrich, who, asserting that a nervous asthma produced by spasmodic contraction of the smooth muscular fibres in the lung, is not possible, and that such a condition does not exist, teaches that the phenomena of asthma depend upon a momentary impediment to the respiration, due either to tonic spasm of the diaphragm alone, or a similar spasm of the diaphragm and the respiratory muscles together, in connection with which spasm of the glottis may or may not be present. The author refers to Bert's recent experiments, which are confirmatory of Williams's, showing that distinct contractions of the bronchi are caused by galvanization of the lungs as well as of the vagus. These, he thinks, render it no longer doubtful that the bronchial muscles are excited to contraction by irritation of this nerve.

Wintrich lays great stress on the depressed position of the diaphragm and the dilatation of the lungs which are always present during paroxysms of asthma, and which he cannot associate with a spasmodic contraction of the bronchi. Biermer, who recognizes the position of the diaphragm as a constant occurrence in bronchial asthma, says that in real bronchial spasm the inspiratory force becomes the antagonist of the bronchial muscles, and drives the air with force through the constricted bronchi into the alveoli. This air, however, escapes but slowly and incompletely, despite the assistance of all the expiratory forces in expiration, and hence follows distention of the lungs.

"Apart," he says, "from the improbability of a diaphragmatic tetanus continuing for hours, Biermer maintains that he has always been able to satisfy himself that the diaphragm contracts rhythmically during the asthmatic attack. The indistinctness of its movements is explained by the obstacle to its elevation during its relaxation furnished by the dilatation of the lungs." "The exception taken by Wintrich," he continues, "that the spasm of the bronchial muscles must be overcome by the greater antagonistic forces of expiration, such as elasticity of the lungs and thorax, the expiratory muscles, and the like, is rejected by Biermer, who denies that the role of the expiratory forces is antagonistic to the bronchial muscles. The expiratory pressure, moreover, acts by no means only upon the contents of the alveoli—the bronchial spasm would be readily overcome thereby, as a matter of course—but acts upon the broncheoli also. The bronchi, during expiration, are subjected to the general expiratory pressure and to the pressure of the morbid contraction of the bronchial muscles; and it is thus understood how the compressibility of the broncheoli favours their furthur closure, under the influence of varied expiration rather than their further dilatation."

The fact that catarrhal symptoms attend every attack of asthma shows that, in seeking an explanation for the phenomena of this disease, congestion of the respiratory mucous membrane must not be left wholly out of consideration. In fact, Störck has recognized with the laryngoscope this condition of the upper air passages. But it is going too far to say with Weber that the collective manifestations of asthma are most naturally explained by "the supposition of a tumefaction of the bronchial mucous membrane in consequence of dilatation of its bloodvessels through vasomotor nervous influence." The author also refers to the theory of Leyden, who has found in the expectoration of asthmatic patients numerous colourless octahedral crystals, which, he believes, by irritating the peripheral terminations of the vagus nerve in the bronchial mucous membrane, and hence exciting reflex spasms of the muscles of the smaller bronchi, occasion all the symptoms.

In addition to those already noticed, Dr. Riegel is the author of Chapters on Tracheal and Bronchial Stenosis, and on Foreign Bodies in the Trachea and Bronchi, which want of space prevents us from noticing in detail.

If Nothnagel is right in maintaining that irritation of the pleura does not excite cough as his experiments on the lower animals have gone to show, it is difficult to know to what cause to assign the occurrence of this symptom in pleurisy. Dr. Fraentzel offers the following explanation. As soon, he says, as there is any effusion, some slight pressure must be exercised on the lung tissue and the bronchi; a pressure, however, which can still be overcome by the act of inspiration. Hence arises an unnatural strain on the lung tissue and the finer bronchi, and this excites coughing. The same cause of strain will arise in cases of considerable effusion when the patient changes his position, which, as is well known, almost invariably causes him to cough. If the lung is completely compressed by the pleuritic effusion, he continues, then no actual strain on the alveoli or the bronchi can arise. In such cases there is no cough, but it returns when the effusion decreases in quantity, and quite violently if this occurs suddenly, as, for instance, in puncture of the chest.

Dr. Fraentzel considers the condition of what he calls the *half-moon shaped region*[1] as of the greatest diagnostic value in extensive left-sided

[1] Inasmuch as Dr. Fraentzel thinks that the diagnostic value of this semilunar space is much too highly estimated in manuals and text-books, we append the following description of it, taken from the text:—

"We have learned from Traube's researches, that at the anterior base of the

pleuritic effusions. The greater the amount of such an effusion the more it must press the diaphragm down and the smaller this space becomes. If the effusion is not as yet very great, and the diaphragm therefore not yet actually displaced, the percussion note in the anterior part of the chest may be obscured, while this semilunar space still remains unchanged in extent; with increase of effusion this space diminishes, and finally disappears. A re-appearance of the semilunar space will, on the other hand, indicate a decrease in the quantity of effusion.

Dr. Fraentzel attributes the sudden deaths occasionally occurring in cases of pleurisy with effusion to torsion of the great bloodvessels, especially of the ascending cava. This may, through the displacement of the heart, suffer an almost rectangular twist at the point where it perforates the central tendon of the diaphragm to reach the pericardium, a position at which it is firmly attached to the margins of the quadrilateral foramen. Such a twist of the inferior cava, we can readily understand must lead to an imperfect filling of the heart with blood, and hence, since the mass of the blood is already very much diminished in cases where the effusion has been rapidly poured out, to syncope. In the cases in which this accident has come under the author's observation, the effusion has been left-sided. This accident is very frequently the result of a sudden movement by which the twisting of the vessel is very much increased.

The author is an advocate for the active treatment of pleurisy in the first stage, believing that we have the power thereby of reducing the inflammation and of bringing about a complete absorption of the deposited exudation. He recommends the local abstraction of blood by means of leeches and cups, and even goes so far as to advise venesection to the extent of from six to eight ounces in cases marked by very high fever and by rapidly increasing effusion. This is to be followed by calomel and digitalis, and by nitrate of potassa, and in some cases by mercurial inunction and by counter-irritants. Quinia is also, in his opinion, possessed of valuable antiphlogistic properties, and so are drastic purgatives, but he does not consider the application of cold bandages or ice bladders advisable because the cold very often brings on violent fits of coughing, which are very apt to increase the inflammatory action. On the other hand, after the removal of the effusion by operative measures, he is in the habit of applying a small ice-bladder over the situation of the wound for twenty-

left side of the chest there is a region where the percussion note is tympanitic. This region is half-moon shaped, that is to say, it is bounded inferiorly by the margin of the thorax, and superiorly by a curved line whose concavity is turned downwards. This space, which for want of a better name we call the *half-moon shaped region*, begins in front below the fifth or sixth costal cartilage, and extends backwards along the margin of the chest as far as the tip of the ninth or tenth rib. Its greatest breadth is from four inches to four inches and a half.

"The sound in this region, in the natural condition of the stomach and large intestine, is distinguished from that of the lung above it not only by its tympanitic quality, but also by its higher pitch. We must not, however, percuss too strongly if we wish to define accurately this half-moon shaped space, for with very strong percussion we may get a note of tympanitic quality even higher up than this.

"Under normal conditions this semilunar space will be diminished by deep inspiration, as the lung is thereby increased in volume, and with the diaphragm descends lower. From this circumstance we can always conclude that the anterior inferior border of the left lung is movable.

"Conversely, a considerable increase in the width of this space during respiration is usually connected with immobility of the lower border of the left lung, and is one of the most important signs of the existence of contraction of this lung."

four or forty-eight hours. He makes no allusion to the treatment proposed by Roberts of strapping the affected side with adhesive plaster, as in fracture of the ribs, which often, by limiting movement, gives great relief to the patient.

It is with some surprise that we learn from Dr. Fraentzel that there are many physicians in Germany, who still hesitate to have recourse to paracentesis thoracis in suitable cases. He is himself an earnest advocate of this operation, resorting to it in acute cases, where there is danger to life from immediate suffocation, and when the effusion is very large, *i.e.* when there is absolute dulness over the whole of one side anteriorly, or when there is only a small strip where the dulness is not absolute, and this yields a high-pitched tympanitic note; "for we are taught by experience," he says, "that in the case of such extensive effusions death may often supervene quite suddenly either from syncope or from acute œdema of the sound lungs." Again, in extensive effusion absorption will frequently go on much more briskly after the removal of a portion of the liquid, since generally, in these cases, absorption is prevented by the pressure which the pleuritic effusion exerts on the orifice of the lymphatics. Moreover, if absorption is delayed, patches of caseous pneumonia are very readily developed in the compressed lung, to which miliary tuberculosis is sometimes added, or very thick pleuritic membranes remain behind as residua of the effusion, and these forever impede the re-expansion of the lung, and generally lead to contraction of the chest. It needs scarcely be added, that he recommends us to puncture whenever we are satisfied that the effusion is purulent, no matter whether it is large or small in amount. Very full directions are given as to the proper method of performing paracentesis, to which we must, as it would occupy more space than we have at our disposal to reproduce them here, refer the reader who is specially interested in this subject. If the fluid reaccumulates, in cases where the effusion is fibrino-serous he advises us to repeat the operation, and if again unsuccessful in effecting a cure, no longer to put off doing the radical operation. After an incision has been made, preferably in the fourth or fifth intercostal space, midway between two ribs, and parallel to them, and the effusion has been cleared out of the pleural sac, "we must proceed," Dr. Fraentzel says, "to cleanse this cavity, and this we can do by introducing two Nélaton's catheters having several openings at their lower ends, as deeply as possible into the pleural cavity, in the direction of the spine, and then through one of the catheters allow pure distilled water of a temperature of 100° to 103° F., out of an irrigator, to run in till the pleural sac is full, then withdraw this fluid again through the other catheter by means of a double-cock exhausting syringe, and repeat this cleansing process until the water withdrawn from the pleural cavity is quite pure. . . . The wound is then to be dealt with in the following manner: We place in the wound a silver canula which can pass easily between the two ribs, but which is wide enough in the other direction to allow two of Nélaton's catheters of medium size to pass through it." This will allow the frequent cleansing of the cavity, which, in the author's opinion, should be done twice daily. He also recommends the use of *Lister's protective* as a covering to the canula and wound, and whenever this is removed, that the spray of carbolic acid should be directed upon the wound.

Dr. Fraentzel is also the author of articles on Hydro-, Hæmo-, and Pneumothorax. J. H. H.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XXIX.—*St. Thomas's Hospital Reports.* Edited by Dr. BRISTOWE, Dr. JOHN HARLEY, and Mr. WAGSTAFFE. New Series. Vol. V. 8vo. pp. xiv., 451. London: J. & A. Churchill, 1874.

THE fifth volume of the new series of the St. Thomas's Reports contains twenty-two articles, and is illustrated by three charts and six lithographic plates. As is our custom, we shall notice analytically its contents, and first those papers which more particularly pertain to medicine.

The opening paper is an elaborate clinical *Report of Cases of Pneumonia*, in which Dr. THOS. B. PEACOCK, Senior Surgeon to the Hospital, carefully analyzes one hundred cases of idiopathic lobar pneumonia, treated in public practice. The results closely correspond with those deduced by other observers.

The next paper, *On Continued Currents in Fluids as shown without the Admixture of Solid Particles*, is a record of the continuation of Mr. GEORGE RAINEY's physical experiments.

In *A Contribution to the Subject of Cremation*, Mr. ALBERT J. BERNAYS suggests burning the *soil* rather than the *dead*. The body is recommended to be placed in a coffin made of perforated iron plate, and lowered into a grave which is to be filled with clay previously burned, and thus rendered more capable of absorbing gases and of slowly burning them. The advantage claimed for the iron coffin is that its oxidation would be evident in the drainage from the cemeteries, and the power of ferric hydrate in aiding disinfection would be of value.

Dr. JOHN HARLEY, Lecturer on Physiology and Assistant Physician at St. Thomas's Hospital, in a very interesting paper, presents some observations *On the Action and Use of Aconitia*, made with the view of elucidating the precise action of aconite, and of ascertaining whether or not it exercises any control over the febrile state. The experiments were made on the horse, cat, and man, and the following conclusions are deduced from them.

"1. Aconite affects a portion of the cranio-spinal axis in the same manner that strychnia affects the whole. It produces an excitation which results in intermittent spasm.

"2. The focus of the action of aconite is the medulla about the roots of the pneumogastric, hypoglossal, and spinal accessory nerves. Thence its influence radiates along the cranio-spinal axis with rapidly diminishing intensity, as far forwards as the centres of the third nerve, and as far downwards as the origin of the phrenic. The centres about the focus of action are more or less in a state of constant excitation, while those towards the limits are sometimes in a state of depression and sometimes in one of excitation; thus, for example, during a spasm, the pupils may be completely contracted, but in the intervals, and always after moderate doses, they may be slightly dilated, or, at least, the muscular apparatus engaged in accommodation is so far enfeebled that dimness of sight and giddiness result as after conium. And so also with the diaphragm; it is enfeebled by small doses, and is alternately affected by spasm and exhaustion after large ones. Occasionally, however, and during the more violent suffocating spasms, the muscles of the whole of the anterior part of the

body, including the anterior extremities, are involved in the attack (see Obs. 3, p. 150, and Obs. 7, p. 161).

"3. Beyond the limits above indicated aconite exercises a depressing influence on the cranio-spinal axis, almost amounting to paralysis.

"4. The action of the alkaloid on the sensory function appears to be coextensive and coequal with that on the motor function, the area for intense action having the same limits, beyond which the anæsthesiant action rapidly diminishes in intensity. Thus, while the head and neck are deprived of sensation, the rest of the surface is only partially affected, and the sensibility of the lower parts of the body only slightly or not at all disordered.

"5. Apart from the derangement of accommodation, from spasm or enfeeblement of the muscular apparatus of the eye and the ear, the senses of sight and hearing were unaffected; the latter, indeed, was *apparently* wholly unaffected. There was no evidence of any impairment of smell. Taste was, without doubt, greatly disturbed, both on account of its relation to common sensation, and of the deep implication of the fifth nerve.

"6. Beyond the slight depression of function resulting in somnolency (after medicinal doses and in the intervals of the paroxysms which follow poisonous ones) aconite has no direct influence on the brain, and the effects produced by asphyxia have usually only a brief duration at the end of a paroxysm or immediately preceding the death of the animal. The intense distress of impending suffocation produces, however, a total disregard for everything else but the desire for relief, and thus the animal rages frantically about as if actually delirious.

"7. The sympathetic nerve is unaffected. At the moment of death the pupils dilate vigorously; and after death the heart may continue to pulsate,[1] or, if the right heart be arrested by distension, its action may be revived by depletion. The contracted left heart is still, only because it is empty."

From the evidence adduced, Dr. Harley maintains that the heart is only secondarily affected, and as a consequence of the respiratory difficulty.

"8. Death results from asphyxia and progressive collapse of the lung, the former being due to the spasmodic closure of the respiratory passages and paralysis of the muscles of inspiration, and the latter to paralysis of the muscles of inspiration and notably of the diaphragm, which is tucked up higher and higher by the intermittent efforts of the upper intercostals, the scaleni, and sterno-mastoid muscles.

"If, however, the heart be weakened by disease, it may be unable to sustain the strain imposed by obstructed inspiration, and death would then result from syncope, and thus the terrible battle would be sooner ended.

"An examination of the published cases of poisoning by aconite will, I believe, show that the action of the poison is uniform and strictly in accordance with the foregoing facts and explanations."

As regards the influence of aconite on the febrile state, Dr. Harley, from a study of fifteen cases of scarlatina treated with aconite, failed to discover that the drug exercised any appreciable influence on the course of the fever. In twenty cases of typhus—a disease in which, owing to the great prostration and the tendency to pulmonary congestion, the action of aconitia might be expected to be prominently displayed—Dr. Harley found that "the aconite cases passed through the disease remarkably well." The general conclusion derived from the cases is, that, if it be conceded that aconite ameliorates the febrile condition, it does not much control it; further, it cannot in any degree anticipate or cut short the pyrexial stage in a disease against which, if it did possess the antifebrifuge properties ascribed to it, its influence ought to be most marked.

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[1] This I find is strictly in accordance with Dr. Fleming's observations: "Inquiry into Physiological and Medical Properties of Aconite," p. 91 et seq.

Mr. Alfred W. Bennett contributes a short paper *On the Medicinal Products of the Indian Simarubeæ and Burseraceæ*, which is followed by an interesting contribution from the pen of Dr. J. S. Bristowe, entitled, *Cases Illustrating Various Forms of Erythema and their Relations with Lupus Pemphigus and other Affections.* The chief value of the paper is in the notes of the cases which accompany it. Indeed, as the author himself says, there is "little, or nothing, novel in the views" expressed.

Mr. William M. Ord presents *Some Points in the Natural History of Uric Acid and Urates*, and Mr. Walter Verdon is the author of a short paper *On the Intercommunication of Nerves and the Physiological Advantages gained thereby.* The facts, Mr. Verdon thinks, can be grouped together, so as to present three propositions: 1. That structures bearing a functional relation to one another are generally supplied by the same nerve; 2. That in regard to parts thus related, though not supplied by the same nerve, communications are often established between their respective cerebro-spinal nerves through ganglia; 3. That certain branches of the sympathetic have, in their distribution, a definite relation to that of the cerebro-spinal nerves, arising from the same region.

The volume closes with the *Report of the Obstetrical Department*, with *Statistics and Cases*, by Henry Gervis, M.D.; and the *Medical Report*, by the Medical Registrar, Mr. W. S. Greenfield. From the latter we learn that 1240 cases were treated during 1873 in the medical wards—a number which we should have expected to furnish a larger amount of interesting clinical experience than we find recorded in the volume before us. I. M. H.

The first paper of special interest to surgeons is contributed by Mr. William MacCormac, F.R.C.S., who writes *Respecting a Case of Movable Body in the Knee-joint.* The movable body in this case was still attached to the inner condyle of the femur by a narrow pedicle, and as it was difficult to fix it during the operation for its removal, Mr. MacCormac adopted the ingenious plan of first pinning it down to the condyle by transfixing it with a small trocar. He then divided the capsule of the joint subcutaneously, and, having removed the trocar, succeeded in rupturing the pedicle, and extruding the movable body by forcible pressure with his thumbs. The "loose cartilage" was thus lodged in the periarticular areolar tissue, where it underwent rapid absorption. The plan of transfixing the movable body to keep it in position appears to have been suggested by Dieffenbach's method of pinning the body to the synovial cul-de-sac, in hope of causing the formation of adhesions.

On the Corpus Morgagni, with reference to Diseases of the Testicle, is the title of the next surgical paper, which is furnished by the Surgical Registrar, Mr. S. Osborn. The object of this paper is to show that the body or hydatid of Morgagni, a fœtal structure which constitutes the upper part of the so-called Müllerian duct, is the seat of the "encysted hydrocele," as well as of certain solid tumours of a fibrous or cartilaginous nature, and of dermoid cysts. Mr. Osborn's paper is illustrated with several well-executed wood-cuts.

Surgical Experiences in Military Hospitals in Japan form the subject of the next article, which is from the pen of J. B. Siddall, M.D., late Medical Officer to H. B. M. Legation in Japan. This is quite an interesting paper, though a considerable portion of it can hardly be regarded as suited for a volume of Hospital Reports. Japanese patients, according to Dr. Siddall, excel in the qualities of resignation and quiet endurance, but are deficient in nervous power, and do not readily recover from the shock of operations; it was probably on this account that his cases of severe compound fracture did

so much better under expectant treatment than when submitted to amputation. Dr. Siddall's paper is adorned with three lithographic plates, two illustrating the effects of injuries, and one showing the Japanese mode of carrying wounded men on "kagos" and stretchers.

We turn next to *Notes on the Treatment of Burns and Scalds and the Deformities they occasion, with Two Cases of Plastic Operation under the care of the Author;* by FRANCIS MASON, F.R.C.S., Senior Assistant Surgeon and Lecturer on Anatomy at St. Thomas's Hospital. This paper is meant as a supplement to that on *The Treatment of Cicatrices after Burns*, which Mr. Mason contributed to the third volume of the *Reports*, and which was noticed in the number of this Journal for October, 1873, p. 489. The first portion of the present communication is devoted to an account of various topical remedies which have been and are now employed in the treatment of burns and scalds, the author expressing his preference for a mixture of whiting and vinegar, applied during effervescence. In the latter part of his paper, Mr. Mason describes different plastic operations which have been suggested for the relief of the deformities which follow burns, and narrates two cases of his own, in which he successfully resorted to the transplantation of a flap of skin, much after the manner practised by Carden and Mütter. Mr. Mason's paper is illustrated with seventeen wood-cuts.

The next article is communicated by Mr. F. LE GROS CLARK, F.R.S., Consulting Surgeon to the Hospital, and describes a case of *Partial Dislocation of the Head of the Humerus Backwards*. Mr. Clark saw the patient two hours after the occurrence of the accident by which he was hurt, and found that the head of the bone had shifted its position directly backwards, and rested on the posterior edge of the glenoid cavity. Reduction was readily effected by raising the elbow from the side, and rotating the humerus, when the head of the bone slipped into place with an audible click. The patient made a good recovery.

On the Mechanical Structure of the Cancellous Tissue of Bone is the title of a paper contributed by Mr. W. W. WAGSTAFFE, Assistant Surgeon and Lecturer on Anatomy to the Hospital. This article, which is accompanied with twenty-eight wood-cuts, intended, we are told, for a Manual of Osteology since published by the Messrs. Churchill for the author, seems to us eminently ill adapted for a volume of Hospital Reports. Mr. Wagstaffe's observations with regard to the arched arrangement of the cancellous tissue, were, he tells us, made independently of those which he has since found in foreign works, and which have not been sufficiently noticed by English anatomists. The earliest paper which Mr. Wagstaffe quotes is one by G. H. Meyer, published in 1867, and he is evidently quite unaware that this beautiful mechanical arrangement for combining strength with lightness was clearly, though briefly, described several years before by our fellow-countryman, Prof. Joseph Leidy, in his Treatise on Human Anatomy, published in 1861.

Serpiginous and Phagedænic Ulceration and Quinine are treated of by Mr. JOHN CROFT, F.R.C.S., in a paper of ten pages, in which he maintains, and we think with reason, that large doses of quinia are of great value in the treatment of phagedænic ulceration, and, when this depends upon a syphilitic taint, may be suitably combined with the iodide of potassium.

Jottings from the Surgical Out-patient Room are contributed by Mr. HENRY ARNOTT. Among the cases narrated in this paper are eight of the so-called congenital tumour of the sterno-mastoid muscle, the pathology of which curious affection is, as our readers know, by no means clearly understood.

"So far as I know," says Mr. Arnott, "the anatomy of this singular swelling

had never been ascertained, or at least published, until a few months back, when Dr. Frederick Taylor showed a specimen at a meeting of the Pathological Society of London, with microscopical sections and drawings. The fibro-nuclear infiltration of the muscle in the case exhibited left the pathology of the disease still uncertain; for such a structure might as readily be the result of syphilitic change as of chronic inflammation—whether caused by injury or in some other way—or it might merely represent an erratic form of connective tissue development such as is met with in other tumours in earliest infancy."

The objection to the theory which regards the congenital tumour of the sterno-mastoid as a neoplasm, is that it gradually disappears without any treatment, which is not the ordinary history of new growths; at the same time, it must be confessed that, in many instances, no proof of a traumatic origin can be established, and no evidence detected of a syphilitic taint either in the child or in its parents. Mr. Arnott is disposed to conclude—

"that the induration is due to some hypertrophic changes in the connective tissue in intra-uterine life, gradually subsiding after birth; but why this change should be so generally limited to one muscle, and that the sterno-mastoid, there seems as yet insufficient evidence to explain."

To which we must add that, if the disease be really one of intra-uterine life, it is difficult to understand why it should almost never be noticed until several weeks after birth.

Among other matters of interest referred to by Mr. Arnott, is the occurrence of syphilitic gummata in front of the patella, when they are apt to be mistaken for bursal enlargements; we have known the opposite error to be committed, and a patient with solid bursal enlargement fruitlessly treated for months with large doses of iodide of potassium.

Three Rare Surgical Cases are next narrated by Mr. Sydney Jones, M.B., F.R.C.S. The first case was one of *Lymphangioma, with general enlargement of limb and elephantiasis of toes.* The patient was a man thirty-one years of age, and the disease appeared to have originated spontaneously. The back and inner part of the right thigh was the chief seat of the angeiomatous development, the swollen lymphatics looking a good deal like varicose veins, and discharging at varying intervals a white milky fluid, sometimes to the amount of two quarts a day. The appearance of the patient is shown by a lithographic plate, and reports are appended of the chemical composition of the exuded chylous fluid, by Dr. A. J. Bernays, and of the anatomical structure of the affected skin, by Mr. Charles Stewart. Mr. Jones's other cases are one of elongation of the limb in connection with disease of the knee, and one of excision of the astragalus after dislocation of eight months' duration. Both of these cases are, like the first, illustrated by lithographs.

Notes on the Ophthalmic Department, by Sidney Bernays, Assistant in the Eye Department, are mainly devoted to a description of the conveniences for treating diseases of the eye at St. Thomas's Hospital, and of the regulations which govern the service in the eye department.

The *Surgical Report* for 1873, by Charles Creighton, M.B., Surgical Registrar, contains as usual a number of interesting tables, with explanatory remarks upon some of the more important cases.

As a whole, the present volume does not impress us as of equal value to some which have preceded it. J. A., Jr.

ART. XXX.—*The West Riding Lunatic Asylum Medical Reports.* Edited by J. CRICHTON BROWNE, M.D., F.R.S.E. Vol. V., 8vo. pp. 292. London: Smith, Elder & Co., 1875.

WE scarcely know what more we can say as to the general quality of this number of an excellent series, than to say that it sustains the high standard set up by its predecessors. It contains fifteen articles written by past and present officers of the Asylum, and by other physicians interested in the class of investigations there undertaken.

Dr. MERSON, Assistant at the Asylum, treats of the *Influence of Diet in Epilepsy.* He here regards food not as affecting the disease through its greater or less digestibility, but as furnishing more or less of the elements adapted to maintain or increase the nutrition of the gray matter of the brain. Believing that in epilepsy we have abnormal activity of this organ, he thinks food not especially promotive of its growth should be preferred. Upon this theory, farinaceous diet should be given, and nitrogenous withheld. To ascertain the practical correctness of this view, held by Dr. J. Hughlings Jackson as well as himself, Dr. Merson made some experiments. For four weeks, twelve patients had only nitrogenous diet, and twelve others only farinaceous. Then for another four weeks the two parties exchanged diets. The most decided results noticed were in the general mental condition. Upon farinaceous food, each group of patients became comparatively bright and active, while upon the other they in turn became heavier and more stupid. The effects upon the convulsions were perhaps less marked—certainly less uniform—but on the whole supported the preference given on theoretical grounds to the non-nitrogenous nourishment. Upon the additional theory of Dr. Jackson, that the augmented nutrition of the epileptic brain is carried on upon "a lower level" (whatever that means), phosphorus was afterwards given with farinaceous food, for a month, to twenty-two of these patients. The results were various, but not so favourable as was hoped.

Dr. FERRIER contributes an elaborate and ingenious paper upon *Labyrinthine Vertigo or Menière's Disease.* The essay was suggested by a case recently occurring in his practice.

Dr. LAWSON, Pathologist and Assistant at the Asylum, describes his experiments and observations as to the *Physiological Actions of Hyoscyamine.* In a few experiments upon small animals he noted changes produced in pulse and temperature. In two experiments on man he also observed the pupils, respiration, secretions, and general condition. The results varied greatly with different doses, and were too numerous to be particularized. In small or moderate doses the drug acts as a gentle stimulant, especially of the sympathetic and vaso-motor systems of nerves. In larger amounts it is an agent of great power, and often extremely useful in controlling maniacal excitement.

Clinical Assistant W. BEVAN LEWIS gives the results of his examinations in studying the *Histology of the Great Sciatic Nerve in General Paralysis of the Insane.* For first observing pathological changes in the sciatic nerves of general paralytics, the writer assigns the credit to Dr. Herbert C. Major, now and previously a valued officer of the Asylum, and contributor to its publications.

To the naked eye, we are told, the sciatic nerves of all general paralytics examined by the writer, have appeared smaller than natural, and flattened; and have felt soft and compressible. The neurilemma lacked its natural lustre.

The funiculi were slightly smaller than in health. Very marked atrophy of small groups of nerve-tubuli was observed in the midst of fibres perfectly healthy. With the progress of disease the wasting is more complete, and affects more fibres. The vascular network about the nerve-fibres was increased; and connective tissue—wanting, or of small amount in health—was plainly visible between the tubuli. These appearances are quite different from those found in the same nerve when degenerating from senile atrophy or from disuse of the limb.

Dr. Lewis goes on to make some inferences as to the course and character of general paralysis, which we have not space to present.

Dr. J. Hughlings Jackson presents a very valuable essay *On Temporary Mental Disorders after Epileptic Paroxysms.* Particularly glad are we to welcome such a just and temperate paper from a physician not especially devoted to the study and treatment of insanity. The public, lawyers, judges, and even medical men, seem predisposed to reject with scorn and indignation the plea of irresponsibility, when offered to save from the gallows the unhappy perpetrator of some bloody deed. The very striking cases reported by Dr. Jackson, with the strictly logical inferences which he draws from them, ought surely to cause any intelligent reader to hesitate, before ignoring or setting aside the carefully formed opinion of the expert in mental disease.

The original cases which form the text of Dr. Jackson's paper, are illustrations of absurd, improper, or unusual conduct following an epileptic seizure—which, moreover, was often so light as to attract little or no attention. The moral is, that as an epileptic may with apparent intention, deliberation, and contrivance, do trivial things of which he is actually unconscious, and which are results of disease, so also may he, with all appearances of cold-blooded and deliberate atrocity, or fiendish wantonness, commit some dreadful murder while his proper consciousness is asleep. Mental automatism is the not ill-chosen name which the writer invents for this condition of activity with suspended consciousness.

Many of these cases exhibit a degree of method, combination, and adaptation of means to ends, sufficient to insure for the sufferers, at the hands of a "common-sense" jury, death on the gallows, had they chanced to spill blood instead of committing some simple absurdity. There is, indeed, too much reason to fear that epileptics have suffered the death penalty, even of late years, for deeds which were wholly the offspring of their disease.

Dr. Jackson very properly lays stress upon the important fact that the usual visible tokens of epilepsy, even of the *petit mal*, may be wholly wanting, and the automatic act may be the first thing to attract attention. And the slighter the convulsive paroxysm is, the more elaborate is likely to be the delirium and automatism. At least as far as appearance goes, the latter phenomena replace the former.

Dr. Arbuckle, of the Asylum staff, gives the results of observations made by him with the ophthalmoscope, upon *The Appearance of the Retina and Choroid during the administration of various drugs.* His object was to determine whether the circulation within a healthy eye is affected by drugs. Although the rabbits were powerfully affected by the agents employed, and even killed by them, the disk, retina, and choroid showed no deviation from the normal condition. Nitrite of amyl, given to a man, did not produce the effect reported by other observers, being wholly without action upon the intra-ocular circulation. In epileptics and in general paralytics, the writer failed to find any modification of the vessels within the eye. It is scarcely needful to add, that Dr. Arbuckle believes the condition of the inner eye to be a wholly untrustworthy guide and index to the cerebral circulation.

We hardly know what to think of this apparently direct contradiction to the observations of other investigators. We have certainly been taught by other writers in these books that the circulation in the eye was a correct index to that in the brain, and greatly susceptible to the action of drugs. The editor at least deserves credit for candor and boldness in presenting both sides of the question.

Under the title of *Othæmatoma, or the Insane Ear*, LENNOX BROWNE, F. R. C. S. Edin., gives an account of that very curious effusion of blood followed by contraction and shrivelling, which is not uncommon among the chronic insane. It more commonly affects the left ear, and attacks men oftener than women. Idiots are said also to be liable to the disease. It has been supposed never to appear in persons of sane mind, but there seems now to be some little testimony to the contrary. There is no reason for attributing the disease to violence.

Dr. HERBERT C. MAJOR, now Deputy Medical Director of the Asylum, and author of many valuable papers in previous volumes, contributes a very curious and interesting paper, *Morbid Histology of the Brain in the Lower Animals*, showing the resemblances and differences between the cerebral histology of aged dogs and horses, and that of men affected with disease or old age. The changes in the brain of the lower animal seem very similar in kind to those in the human brain, though less in degree. The value of this article is much increased by the beautiful coloured lithographs of brain-sections which accompany it.

Dr. J. MILNER FOTHERGILL treats of *Cerebral Hyperæmia*, meaning that condition in which there is an increase of arterial blood passing through the brain. He emphasizes the fact that hyperæmia has two causes, general increase of blood-pressure, and a change in the tissues by which they attract or admit more blood. He then proceeds to describe the phenomena and results of cerebral hyperæmia under three heads: that due to vascular excitement, that without vascular excitement, and that produced by drugs. We query whether the latter form is not always coincident with the first or the second; but the division may be a convenient one.

H. R. OCTAVIUS SANKEY, under-graduate in medicine, describes *A New Process for Examining Brain-substance*. For a colouring agent, he finds that a peculiar aniline blue-black possesses especial advantages. He states in detail his whole method of preparing and mounting brain-sections. Some results of his study of the histology of the cerebellum are given, illustrated by two beautiful coloured lithographs.

Dr. C. F. NEWCOMBE, formerly of this asylum, treats of *Epileptiform Seizures in General Paralysis*. In some form, the majority of general paralytics suffer from such attacks at some period. The termination of the cases does not seem to be hastened by the attacks. The writer contradicts the statement of Griesinger, that seizures never occur until the disease is far advanced. A sudden fall of temperature, followed at once by a much greater rise, is observed at the onset of the paroxysms. Illustrative cases of general paralysis complicated with epileptiform attacks, are taken from the asylum records.

Dr. J. C. BROWNE, the editor, has prepared an elaborate paper upon the *Functions of the Thalami Optici*. Here again the records of the asylum furnish illustrative cases. The writer is convinced of the correctness of that view which regards the thalami as sensory centres. Destroying lesion of one of these, is distinguished by loss of general sensibility on the opposite side of body and face, and abolition of reflex excitability on the opposite side of the body. Cases are happily chosen to exhibit the different symptoms in patients whose

thalami were, or were not, found to be affected. Dr. Browne believes that his cases show the thalami to be to the sensory nerves what the auditory or olfactory ganglia are to their special nerves.

Why destruction of an optic thalamus should abolish reflex excitability, when complete removal of the brain causes its increase in parts supplied by spinal nerves, is a difficult question, and is here discussed at length, but not very satisfactorily answered.

Dr. A. M. Wallis, formerly of this asylum, gives expression to his sense of the great value of *Chloral Hydrate in Epileptic Convulsions.* Many cases are adduced as proof. It is a little disturbing, just as we had yielded full belief to the claims of nitrite of amyl, as a controller of paroxysms, to find that drug rudely dethroned and another set up in its place. Between the two, however, convulsions ought to be well-nigh abolished.

Dr. Lennox Browne has tabulated and summarized the results of a series of *Laryngoscopic Observations* made upon fifty patients affected with general paralysis. These curious and interesting examinations were made with less difficulty than would be expected, because of the diminished reflex excitability in throats of this class. The vocal organs were generally rather flabby and relaxed, with a tendency to congestion of the pharynx. Besides a want of tension, the vocal cords showed a want of co-ordinate action. The epiglottis was often unduly pendent.

We have now glanced—we fear in a very unsatisfactory manner—at the contents of this important work. The profession, and alienists in particular, owe to the West Riding Asylum management a debt of gratitude for the profound and laborious investigations there conducted. B. L. R.

Art. XXXI.—*Transactions of the American Otological Society.* Eighth annual meeting. Vol. II. Part 1. 8vo. pp. 96. Boston: Jas. Campbell, 1875.

Though this number of the Transactions presents rather less original matter than the last, it contains some interesting and valuable papers, and bears ample evidence that American aural surgeons continue faithfully and earnestly at work. An elaborate *Report on the Progress of Otology* during the year, by Drs. Blake and Mathewson, occupies two-thirds of the pamphlet. More work having been done in the direction of anatomy and physiology, that section of the report is particularly interesting, and we regret that we have space only for a general outline of the nature of its contents. These comprise investigations upon the relations of the stapedius muscle, the anatomy and physiology of the Eustachian tube, the histology of the membranous semicircular canals, the comparative anatomy of the organ of hearing in locusts, grasshoppers, and mosquitos, the functions of the external ear, the analysis of composite sounds, the examination of the ear by polarized light, and the vexed question of the effects of division of the semicircular canals. The interest and instruction afforded by the clear and full *resumé* of these investigations will not be confined to aural surgeons. There is a second section of the report devoted to pathology and therapeutics, and a complete bibliography is added.

Dr. Albert H. Buck, of New York, contributes a paper on *A Method of using Medicated Eustachian Bougies.* In view of the difficulty and danger attending the use of medicated fluids, he makes applications to the Eustachian tube by means of whalebone or catgut bougies armed with cotton-wool. His

favourite remedy is nitrate of silver. Cases are given illustrating the success of the treatment.

Dr. CLARENCE J. BLAKE, of Boston, details some experiments on *Intra-tympanic Pressure during Phonation*. "It is evident that under normal conditions the changes in the contour of the buccal cavity during phonation result in corresponding variations of pressure in the mouth and in the naso-pharyngeal space; and the case in which the following tests were made proves conclusively that this pressure is sufficient to be communicated through the Eustachian tube to the middle ear." The patient had had a purulent inflammation of the middle ear for many years, resulting in almost complete destruction of the membrane and polypoid granulations of the mucous membrane of the tympanum. After careful treatment the granulations disappeared, and "a cicatricial growth, starting from the periphery of the membrane and from about the malleus, formed a septum between the lower and anterior portion of the tympanic cavity and the outer ear." This membrane was thin and flaccid, and easily made to bulge outward by forcing air through the Eustachian tube. Some time afterwards the patient reappeared, speaking as if suffering from a bad "cold in the head;" that is, the m, n, and ng sounds were pronounced b, d, and g. There were no other symptoms of a cold, and he explained the peculiar pronunciation as the result of a voluntary effort to suppress the nasal sounds, because they were accompanied by a very disagreeable crackling and bursting sound in the ear. An examination of the ear while the patient produced the nasal sounds, showed that, with each sound, the flaccid membrane executed a corresponding movement. By pressing a probe against the membrane its excursions were partially controlled, and the unpleasant sensations correspondingly diminished. When a portion of the membrane was excised, its movements immediately ceased, and the nasal sounds were pronounced clearly and without annoyance.

Experiments with a manometer made afterwards upon this patient and upon a person with sound membrane, showed a movement in the column of fluid, when the nasal sounds were pronounced, exactly corresponding to the movement of the abnormal membrane.

"The movements of the membrane in the case described, and of the manometric column when the tube was placed in the ear, show a certain pressure in the naso-pharyngeal space, corresponding to each of the three nasal sounds, and an examination into the position of the lips, tongue, and palate in the production of m, n, and ng, shows a corresponding diminution of the capacity of the buccal cavity."

"In the present case the unpleasant sensation in the ear caused the patient to seek relief by substituting the media b, d, and g for the nasal tones, thus allowing the air to pass out through the mouth, and diminishing the pressure in the pharynx and Eustachian tube and ear."

Dr. CHARLES J. KIPP, of Newark, N. J., reports *A Case of Angioma Cavernosum of the Lobule of the Ear*. The patient, a man aged 50, in good health, referred the commencement of the disease to a frost-bite twelve years before. The tumour was about the size of a hazel-nut.

Dr. GEORGE STRAWBRIDGE, of Philadelphia, contributes an account of a *Congenital Malformation of the External Ear*, and of a *Fibro-cartilaginous Tumour of the Lobule*. The subject of the malformation was a boy, 18 years of age, "whose right external ear was represented by a fold of integument 22 mm. long and 16 mm. wide, in which could be felt a small portion of cartilage." In the centre of this fold there was a rudimentary external meatus ending in a cul-de-sac. The watch and tuning-fork could be heard in contact with this rudimentary ear. The patient in whom the fibro-cartilaginous tumour of the

lobule occurred was, as is usually the case, a negro woman, and the disease was referred to the irritation of the lobule by an ear-ring.

A Case of Multiple Abscess of the Auricle, resulting in partial destruction of the cartilage, developed from a middle and external otitis, and somewhat resembling an othæmatoma, is reported by Dr. O. D. POMEROY, of New York. The abscesses were thought to be the result of a perichondritis developed by an extension of inflammation along the meatus from the tympanum. The cartilage entirely disappeared from the region of the abscess, leaving only integument and connective tissue in its walls.

Dr. POMEROY also reports *A Case of Otitis Media Hemorrhagica*. The attack of otitis was acute, coming on with chill, fever, and violent pain. The membrane was excessively distended with blood, which flowed out freely when the membrane was punctured. The patient made an excellent recovery. There was no kidney or brain disease.

The Early Treatment of Ear Diseases is the subject of some remarks by Dr. ROOSA, of New York. He thinks that otologists have given an undue amount of attention to the more chronic and intractable diseases of the ear in proportion to that paid to acute and curable affections, and that "our mission is now to teach the profession and the public that *acute* cases of aural disease are peculiarly susceptible to treatment, and that our hope for the prevention of chronic diseases lies in the early treatment of the very earliest stages of affections of the ear."

Though this latter assertion may have something the appearance of an absurdly obvious truism, no one who is much occupied with the treatment of aural disease will feel that this simple lesson can be too often repeated or too strongly urged. Many able and conscientious practitioners who would be the last to allow a destructive inflammation of the eye to progress for months unopposed, except, perhaps, by a feeble protest of warm water, glycerine, or olive oil, to hopeless disorganization, still strangely adopt exactly that plan in the treatment of the acute aural diseases that come under their care. This is particularly the case when the affection of the ear occurs in the course of some general disease whose gravity obscures the importance of the complication.

Dr. ROOSA also contributes *A Case of Purulent Infection (pleuro-pneumonia) resulting from Suppuration in the Middle Ear*, and a report of *Experiments concerning the Effects of Quinia upon the Ear*. These experiments were three in number, and referred to the immediate effect of the drug upon the ear. The first has already been fully published by Dr. Hammond, who was himself the subject of the experiment, in the *Psychological and Medico-Legal Journal*, October, 1874. The other two confirmed the result of Dr. Hammond's experiment—that the effects of quinia upon the ear are due to congestion.

G. C. H.

ART. XXXII.—*A Manual of General Pathology*. For the use of Students and General Practitioners of Medicine. By ERNST WAGNER, M.D., Professor of General Pathology and Pathological Anatomy in the University of Leipzig. Translated from the Sixth German Edition by JOHN VAN DUYN, A.M., M.D., and E. C. SEGUIN, M.D. 8vo. pp. 728. New York: William Wood & Co., 1876.

THE first edition of this really great work appeared in Germany in 1862, and was the joint labour of Wagner and Uhle, though the latter's share was a

posthumous one, he having died before its appearance. A new edition became necessary every two or three years, owing to the rapid strides in pathology; and finally this sixth edition presents itself, augmented in almost every chapter, very voluminous, and a monument of pains-taking, careful observation, great patience, clear perception, and encyclopædic knowledge—a type of a class of scientific work which we look for almost in vain out of Germany. This is really the first time that a complete description of the state of general pathology, now current, has been presented to the English-speaking part of the profession. The views now held by progressive investigators in this branch of medical science are given in a marvellous mass of well-arranged and carefully digested facts, embracing all departments of pathology, and furnishing minute and detailed information on every subject pertaining to the morbid state and disease in all its protean forms. Wagner's systematic arrangement and skill in classification are admirable, particularly in elucidating the bearings of facts upon the processes of disease.

The work is divided into four parts, of which the third and fourth occupy by far the larger part of the volume.

Part first treats of general nosology, in which is considered the nature and extension of disease, its symptoms, diagnosis, prognosis, course, and termination in recovery or death. The definition of death will give an example of the occasional conciseness of Wagner's language. He defines it as "the suspension of tissue metamorphosis, and its characteristic symptom is the cessation of the functions." The first part occupies thirty-six closely printed pages.

Part second treats of general etiology, subdivided into internal and external causes. Under the first are included inheritance, age, sex, constitution, habit, or temperament. The distinction between congenital and inherited diseases is well made. External causes include atmospheric influences, the soil, the climate, dwellings, clothing and bedding, food and drink, occupation, profession, and other social conditions; and parasites, subdivided into animal and vegetable. Wagner calls attention, among other facts in atmospheric influences, to the relation that the quantity of oxygen in the air, and the loss of perspirable material, bear to the rarefaction of the air. The phenomena of "taking cold," with the modern explanation, are given in detail.

The relations of the underground-water and stratum-water to health and disease are fully considered; and also the soil's modification of atmospheric pressure; of the temperature, purity, dampness, and movements of the air, and its influence on the nature of food. The effects of clothing and bedding on the bodily heat and its radiation are discussed; and also the importance to health of a stratum of air inclosed between the skin and the clothing. The more the air of a tissue is displaced by water, the less it can keep us warm—hence the susceptibility to dampness and catching cold in wet clothing.

The subject of parasites, vegetable and animal, including all the varieties of coccus and bacterium, is considered very fully, particular attention being devoted to the subject of fungi as excitors of fermentation and putrefaction, and as causes of contagious and other diseases. This is, perhaps, the most important medical question of the present age, and one which is staring us in the face at every turn. Wagner here gives us a very elaborate account, condensed from the views of all the modern authorities, in which the description of the organization and development of the fungi is very complete. Under this head we have a brief, though interesting account of gangrene of the spleen. The closing pages of the second part are devoted to the discussion of contagiums and miasms, in which the subject of epidemics is reviewed with care in all its phases. Among the various theories of the infecting agent in contagious dis-

eases, Wagner regards the so-called parasitic theory as the most probable, yet admits that in certain especially contagious diseases, the vehicle of the contagium is known, for they can be propagated by inoculation. The various contagious diseases are briefly discussed with reference to the manner in which the contagium is carried and received, in what stage of the disease it is generated, its incubation and inoculation. This part also has twenty-two pages of matter on all the animal parasites, including the arthropoda.

Part third is the most extensive one in the book, covering nearly four hundred pages, and treats of general pathological anatomy and physiology. It is divided into three sections: 1st. Local Disturbances of the Circulation; 2d. Inflammation; 3d. General Disturbances of Nutrition; and each of these is subdivided into a number of smaller sections. Under the head of local disturbances of the circulation, we find anæmia, hyperæmia active and passive, thrombosis and embolism, hemorrhage and dropsy. In these sub-sections the normal physiology of the body, especially of the blood and lymph, the influence of nerve-distribution upon circulation and secretion, the nature and properties of the white blood-globules, and the manner of formation of fibrin, are all described with a fulness which leaves nothing to be desired, though often the style is very much involved. Though all this occupies a great deal of space, yet it cannot be dispensed with, if we wish to have a clear comprehension of the local disturbances in the circulation, and of the etiology and nature of inflammation. The subject of thrombus, in its causation, organization, destiny, and results, is very carefully discussed; but the mode of organization is still left open, as the views held concerning it are very much divided.

The section on embolism is particularly good in regard to the effects ascribed to emboli, gangrene, hemorrhage, or metastatic abscesses. The question of specific poison as a contagium again appears in these sections on thrombus and embolism.

Fifty pages are given to a consideration of Inflammation in the widest sense, beginning with a definition—to which, however, as to all other definitions of this subject, valid objections may be raised. The influence of the nerves upon the origin of inflammation is given somewhat briefly; but we have a very full discussion of the origin of pus-corpuscles, and their relation to the white blood-corpuscles. There is also a very complete and exhaustive abstract of the various theories of inflammation which have held or are still holding sway. As the subject of diphtheritic exudation is reached, the author again brings forward the question of septic poisoning and a specific contagium; and it also appears under the head of Gangrene. It is easy to see from the numberless references and abstracts how important a part this question of fungi, whatever they may be, plays in modern scientific medicine. Wagner makes three classifications of inflammations: 1st. An etiological division; 2d. A classification according to the preponderance of some one of their elementary phenomena, such as congestive, exudative, productive, or degenerative; and, 3d. A classification with respect to their character.

The third division of part third, or the general disturbances of nutrition, is subdivided into three sections: 1st. Imperfect nutrition or retrograde metamorphosis or atrophy; 2d. Gangrene; and, 3d. Progressive metamorphosis or hypertrophy, and tumours. Under the first of these heads we find classified the various degenerations, albuminous, fatty, pigmentary, calcareous, amyloid, and colloid, and a few words to mucous metamorphosis, as distinct from colloid, which is more correct than to regard it as a form of colloid degeneration, as too many pathologists are in the habit of doing.

In the sub-section of progressive metamorphosis, including tumours, we find

a most admirable and full description of the new formation of pathological cells, with cell division and endogenous cell-formation, and the transformation of one tissue into another. The classification of new growths given by Wagner is histological mainly, but at the same time he does not disdain assistance from etiology and clinical observation. He presents fifteen varieties of new formation, according to the tissue involved, with a mass of information extending through one hundred and fifty pages, in which we are at a loss which to admire most, the wonderful faculty of sifting and arranging facts, or the great patience displayed in wading through the immense literature of the subject.

The different varieties of tumours are classified and described in accordance with Virchow's plan as given in his work on morbid growths. As a specimen of the kind of work to be expected all through the book, we would refer the reader to the article on the "New Formation of Osseous Tissue," including the regeneration of bone, and to the very full article on "Tubercle." The author still makes use of the term "cancer," which is perhaps scarcely to be avoided, but with limitations and discrimination. His definition of the term is an extensive one and somewhat complex, but both clinical and anatomical.

Part fourth treats of the pathology of the blood, subdivided into eighteen heads. These include anæmia, changes in the amount of the various constituents of the blood, solid and fluid, with leucocythæmia, jaundice, uræmia, diabetes, and the more rare varieties of dyscrasiæ, such as melanæmia, acetonæmia, and hydrothionæmia. The probable development of the red blood-globules is very clearly stated.

Considerable attention is bestowed upon the phenomena induced by suffocation. The section on pus-poisoning is subdivided into—1st, Septicæmia; 2d, Embolic pyæmia, in its restricted meaning; and 3d, Puerperal fever; and is a very lucid presentation of the recognized theory of pyæmia. The author believes, as do many pathologists at the present day, that septicæmia and pyæmia owe their origin to two different vegetable parasites; the first, to rod-bacteria; the second, to globular bacteria, which act either directly or by generating some noxious substance.

The section on fever is by Prof. Thomas, and is probably the most complete account of the subject which can be found in any work. It is subdivided into three sections, one on the symptoms of fever, one on the regulation of animal heat, and one is a sketch of the recent theories of fever. Under the first head we find considered normal and morbid temperatures, types of fever, a consideration of the pulse and respiration, and state of the urine. In the section on the regulation of animal heat, the author has given a very interesting account of the relation between metamorphosis and heat, and of the influence of the nervous system on the latter.

Finally, sections on marasmus and the hemorrhagic diathesis close the volume.

The work of the translators has been well done, though lacking in smoothness, and in many places containing long-involved sentences. Yet it should be remembered that the style of the original is one of the most intricate in all modern German medical literature, and the translators have done well in endeavouring to present the subject as concisely and clearly as possible. Their work is to be commended, but not more so than their patience in completing what must have been a laborious task. A double index of authors and subjects will be found a great aid in consulting the book.

We would most earnestly commend this work to all students and practitioners who are heartily desirous of perfecting themselves in a knowledge of pathology, as by far the most valuable work on the subject that has yet appeared. The

information furnished by the book is not solely the result of Prof. Wagner's own observation, but has been derived from a very large number of sources, as is shown by the very copious bibliography which heads each chapter, and the many references which appear all through the volume. C. S. B.

ART. XXXIII.—*An Introduction to Pathology and Morbid Anatomy.* By T. HENRY GREEN, M.D. Lond. Second American from the Third Revised and Enlarged English Edition. 8vo. pp. 316. Philadelphia: Henry C. Lea, 1876.

THIS second edition is considerably more than a reprint both in bulk and in increased value. When the first edition made its appearance five years ago, we had no satisfactory work on elementary pathology in the English language, and were therefore very glad to see this work of Dr. Green's; and in reading now this later edition, we see no reason to recall our former good opinion, but on the contrary, to reiterate and enforce it. The book has been very materially altered and enlarged, and a number of the illustrations in the first edition have been withdrawn, and much better ones substituted. The arrangement of the chapters has been altered, and, we think, for the better, and considerable augmentations made to most of them. The chapter on "Tissue Changes in Pyrexia" is new, and the description of the "Pathology of Pulmonary Emphysema" has been entirely remodelled. The presentation of the cell-doctrine, with the anatomy and physiology of cells, is clear and concise, and yet full enough for all purposes. Dr. Green is fully alive to every advance made in pathology, and gives us quite a full notice of Cohnheim's later observations on inflammation.

The chapters on fatty degeneration are very able, and much improved by the new light thrown on its pathology by the researches of Voit and Bauer. The distinction between "fatty metamorphosis" and "fatty infiltration" is very clearly stated, and particularly well exemplified in the account of fatty degeneration of the heart.

In the chapters on "Tumours or New Formations" we think Dr. Green errs in clinging to the word "cancer" as a histological definition, which in its divisions is confusing, in the present state of our knowledge of the subject. He seems inclined to admit the probability of the so-called "spermatic influence" of the primary tumour on the secondary tumour through the cells or minute particles transmitted from the primary tumour.

The chapter on inflammation is very clear and gives the latest views of Ryneck and Cohnheim in regard to the part played by the walls of the blood-vessels in the process.

The account of the general pathology of tubercle and of acute tuberculosis is very good, and abreast with the latest investigations.

Reverting again to the subject of inflammation, the part played by the leucocytes and the connective tissue corpuscles respectively in inflammation of connective tissue is most admirably explained in the light of the most recent investigations.

The author is perhaps wiser than his generation in not attempting to draw any dividing line between the histology of croup and that of diphtheria, but this, if an error, is certainly one on the right side.

The sections on croupous, catarrhal, and interstitial pneumonia are very

carefully written and clearly expressed. The author is inclined to agree with Buhl's statement, that in the catarrhal form of pneumonia, occurring as a sequel to capillary bronchitis in children, the nodules of pulmonary consolidation frequently consist almost entirely of bronchial secretion, and hence the term "pneumonia" is not strictly applicable. In regard to the etiology of interstitial pneumonia, Dr. Green doubts the correctness of the view entertained by many pathologists, that a fibroid change may occur in the lungs as a primary and independent affection, and that, consequently, this form of pneumonia occupies the same pathological position as the indurative processes in the liver and kidneys.

The chapter on pulmonary phthisis is perhaps the most carefully written and valuable in the book. Its pathology and etiology are particularly well condensed and clear, and yet not too short for a careful consideration of the subject. The whole chapter is a valuable epitome of the established views of later pathologists.

In the chapters devoted to the "Changes in the Blood and Circulation," the description of the organization and composition of a thrombus is especially good.

The book closes with a brief account of the more common methods of preparing and mounting specimens for microscopical examination.

In conclusion, we cordially recommend this work to students and the profession generally, as a specimen of hard work and careful observation in a field of which too little is still known. C. S. B.

ART. XXXIV.—*Diseases of the Hip, Knee, and Ankle-Joints, and their Treatment by a New and Efficient Method.* By HUGH OWEN THOMAS. Pp. 101. Liverpool: T. Dobb & Co., 1875.

DURING the past few years we, on this side the Atlantic, have been almost forced to believe that, if anything good in the way of treating diseased joints was known, our own countrymen were not only the originators but the most successful exponents of the methods.

It is true that Bonnet has written much on this subject, and from him emanate most of the original ideas now in vogue; yet with his writings the busy practitioner is unfamiliar. Barwell and other Englishmen treat of joints and methods for relief, yet they have had no special splint that cured all arthropathies, and the treatment without splints, we are taught to believe, is antiquated.

The book now before us comes from Liverpool, and is in good shape for a library. The type, moreover, is large, the words often widely separated, and the chapters are profusely interspersed with large plates, making it altogether a very readable work. The author in his effort to make a book has *wisely* excluded all that does not bear directly on the special point he aims to bring before the profession. In a word, it is his splint which he has used for ten years, and now, for the first time, brings before the medical public.

The hip splint consists of a thick bar of malleable iron, extending from the lower angle of the scapula to the calf of the leg, first moulded to fit over the sound limb. A band of hoop iron, riveted to the upper extremity, grasps the lower portion of the thorax in four-fifths of its circumference, a second band at middle of thigh extends over half its circumference, while a third band at lower extremity half encircles the calf.

During the first three or four months the patient is confined to bed, and the splint is used continuously, being fastened to the limb and body by means of straps and bandages. This is called *the first stage* of treatment, and during this period he claims ability to bring the limb into normal position. He insists on the absolute dorsal decubitus while the splint is being modified or readjusted. Under no circumstance must the sitting posture ever be tolerated.

The second stage of treatment begins when the patient leaves the bed. Then an iron patten, two or three inches in height, is attached to the shoe of the sound limb, while crutches are used in locomotion. This stage continues until "the limb is well atrophied around the great trochanter."

In *the third stage* the splint is removed at night and replaced during the day, the crutch and the patten being still used "for a certain period."

In *the fourth stage* the splint is discarded altogether, while the crutch and the patten are still retained until the surgeon is satisfied of the permanence of the cure. "If the case does not progress to the surgeon's satisfaction, some of these stages must be prolonged."

Such is the apparatus, and the advantages claimed by the author are its cheapness and its ability to secure perfect *immobilization*, the principle which forms the basis of his whole treatment, and which, in his experience, effects a "resolution of all inflammation in nearly every case, and insures a perfect cure in most instances." He further claims that the prolonged arrest of a joint's movements, for even an unnecessarily long period, certainly never does harm, while motion of an inflamed joint promotes anchylosis. This is contrary to the accepted teaching on this subject, and of it the author seems aware, devoting considerable space to the proof of his statement. While his arguments are not conclusive, they are worthy of much attention, and direct one to a question of great scientific interest. A discussion in this connection is not in order, and those interested are referred to the work itself.

The knee splint consists of an ovoid ring well padded, and through this the limb is placed, while the perineum receives the weight of the body. To the ring are attached two upright bars, joined some two or three inches below the foot by a patten. Between the bars is stretched an apron of basil leather, perforated at two points opposite the knee for the insertion of a bandage. As in hip-joint disease, so in this, a patten is used on the shoe of the sound limb. For diseases of the ankle-joint the same instrument is used.

A review of the chapters seriatim will best bring out the merits and demerits of the treatment, and this shall be done as briefly as possible.

Chapter I. treats of hip-joint apparatus, and a plate accompanying gives Charriere's modification of Bonnet's "Grand Appareil," condemned on account of its cumbersomeness and high price; H. G. Davis' "Perineal and Side Splint, with Counter-Extension;" Sayre's modification of the Davis splint; Taylor's modification of the Sayre splint; Washburn's appliance designed for the poorer classes of patients, and identical in principle with Davis'; and Hutchinson's variation of Taylor's—all of which he condemns because they permit motion at the joint, although claiming to cure the disease by relieving pressure. Mr. Thomas claims to know from "practical experience" that a cure free from defect with these splints is impossible. He admits, however, on the following page, that on rational grounds he was opposed to Dr. Davis' splint, and did not venture to use it. In this country that is not what we call "experience."

On page 6 we find two remarkable paragraphs:—

"Since the visit of Dr. Sayre to England, and the exposition of his method to the London surgeons, I have seen several instances in which his apparatus

was skilfully applied, and, from personal knowledge, I am satisfied that in not one of these cases was the disease benefited or even corrected.

"The best commentary upon this method is the remarkable frequency with which its principal advocate has had to perform excision. Persistent use of his instrument tends to the conditions necessitating this operation."

As regards the first paragraph, his "personal knowledge" checks at once all comment. As regards the second, and especially the last sentence, his statement is purely gratuitous and unsustained by any proof. Such statements enable us to exclude him from the list of scientific Englishmen. Dr. Sayre claims that the majority of his excision cases have never been treated with his apparatus. The author should have been acquainted with histories of the reported cases.

On the same plate are given the splints of Drs. Andrews, Bauer, and Hamilton, the first of which he has tested in practice, and found the results unsatisfactory. The second, being a modification of the first, he has not tested, but condemns untried. Professor Hamilton's apparatus is dismissed as being "not of much value," owing to the upper and lower levers being too short. Of Mr. Barwell's splint he "made a persevering use," and with adults he had some success, with children little or none. Friction, he asserts, is a greater evil than pressure, and any contrivance which does not perfectly immobilize the joint is defective.

Chapter II. discusses superficially diseases of the hip-joint, and embodies a report of ten cases. The first few pages are given up to an exposition of "my new method of diagnosis." If this be the first time the author has made it known to the profession, he will fail to impress Americans, at least, with its novelty. The patient is placed in the dorsal decubitus on a hard table, the spinous processes made to touch, the sound thigh flexed on abdomen and held as a lever, while a failure to bring popliteal space of suspected limb to the table (in other words, to completely extend) is pathognomonic of hip disease. Any student who has attended Bellevue College during the past five or six years is familiar with "my new method." There is one point, however, which our author makes, and that of itself should admit him into the ancient order of clairvoyancy. He can tell how many weeks or months the disease has existed by the amount of flexion; for instance, an angle of *about* 160° enables him to say six weeks, 150° five months, 90° twelve months' duration. Now that is very remarkable. In one case reported, by applying "my diagnostic method," he concluded three months. The parents denied strenuously, but after a few days' consideration came around to his belief. One of our distinguished teachers once remarked, in speaking of a certain case on which he wished to lecture for another disease than the one the patient had, "that's the advantage in having it all our own way."

The reported cases give, on analysis: one received in first stage, duration and angle of flexion not specified, length of treatment twelve months, the first three of which required the horizontal position in bed, with an ultimate cure for the result; four in second stage, two of which were of five months' standing, indicated by an angle of flexion of 150°, the other two, three and four months' standing respectively, not indicated by any given angle of flexion; three were "cured," one "recovered," one kept in bed three months, one five months, one nine months, and one twelve months; five were received in the third stage, and in three relief was afforded, one recovered in three years' time, and one died twenty days after an excision.

Chapter III. is devoted to the knee-joint. Position and the weight of the limb are sufficient, he asserts, to remedy any deformity not the result of true

anchylosis. Twelve cases are introduced, one or two of which "as having been crucial tests of the efficacy of this method of cure." The duration of the disease varied from six months to thirteen years. Six gave flexion at an angle of 90°, two at 140°, one at 120°, and one at 160°. In every instance this flexion was overcome like magic, the shortest period in accomplishing which being ten days, the longest four months. In five, the recovery was perfect, and one of these had numerous sinuses and "kidney disease" as complications. Four recovered with stiffened limbs, while three were greatly relieved.

Chapter IV. is short, and is devoted to a brief consideration of disease of the ankle-joint. Success was great.

In Chapter V. occurs the discussion of anchylosis and its causes, to which reference has already been made.

The number of cases of joint disease treated by the author since the adoption of his new method is one thousand, an analysis of which would have greatly enhanced the value of the book. On the whole, the method thus advocated is worthy of trial, and, if relief can be given to that unfortunate class of sufferers, no stone should be left unturned. V. P. G.

ART. XXXV.—*The Pathology and Treatment of Childbed. A Treatise for Physicians and Students.* By Dr. F. WINCKEL, former Professor and Director of the Gynæcological Clinic at the University of Rostock. From the second German edition, with many additional notes by the author, translated by JAMES R. CHADWICK, M.D., Clinical Lecturer on Diseases of Women, Harvard University. 8vo. pp. 484. Philadelphia: Henry C. Lea, 1876.

FIVE years ago we published a review of this work, and entered at some length into an examination of its merits. At that time, there was no systematic treatise upon the subject in our language. That want has since been supplied by a very excellent work, and now comes this translation as a companion volume for the benefit of the student and as a counsellor to the practitioner.

Dr. Winckel's work is the standard manual upon diseases of the puerperal state in Germany, and in the review formerly published we fully recognized its great merits, and gave the views of its author upon the leading subject of this branch of medicine—puerperal fever.

Little, therefore, remains for us now to do except to welcome the appearance of the translation, unless it be perhaps to point out some of the peculiar features of the work.

In regard to the pathology of the febrile puerperal affections the author is a representative and exponent of the German school which recognizes the local affections as the point of origin of the general disease, and contagion as the chief if not only factor in the propagation of the latter. The key-note of the work may be found in this paragraph:—

"The idea that a general dyscrasia of the blood can be entertained as a remote cause of the more severe puerperal affections, must be abandoned in proportion as we gain a deeper conviction that purely local disturbances of nutrition lie at the foundation of all diseases. The truth of this statement is made evident by the fact that cases are becoming less and less common in which the autopsy reveals an entire absence of local organic affections, and also for the reason that in cases where blood-poisoning can be clearly proved, the source of infection is usually local, and may be traced to the genital organs."

In applying his principles to practice, he draws the lines rigidly, and leaves no standing place for puerperal fever as an essential fever:—

"When the very significant term *puerperal fever* is applied now-a-days to the most severe disease of childbed, the phlegmonous and diphtheritic affections of the genitals are thereby chiefly intended, from which a variety of the malady mentioned in the previous chapter is subsequently developed.

"The important fact should be borne constantly in mind, that the above named processes do not possess any specific character; nor are they by any means restricted to pregnant, parturient, or lying-in women.

"Finally, it is well known that the phlegmonous and phlebitic processes frequently occur in men also, and are throughout analogous to these puerperal affections. Between the latter, whether mild or severe in their character, and the diseases which so frequently supervene in case of wounds (septicæmia and pyæmia), no essential points of distinction can be made out.

"It has been established, almost beyond question, by the researches of modern times, that these affections invariably originate in the genital organs themselves, the constitutional disease being uniformly traceable to this locality as a starting point."

In therapeutics he follows generally the "school" of his country, and especially in regard to the antagonistic use of cold for inflammatory affections. Thus, for instance, in the chapter on puerperal peritonitis, rejecting venesection entirely, and admitting that of late he resorts to local depletion very rarely, he strongly advises the local application of cold, a remedy to which the laity of this country, as well as the profession, are not yet accustomed, and which we think would be at present very difficult of application upon that account.

"If these agents fail to afford prompt relief . . . . three or four ice-bags may be placed upon the abdomen over a thin linen sheet. These should be left in place, and constantly refilled by day and night (the ice must be renewed every 3–4 hours), until the temperature has fallen sensibly, and the patient complains of discomfort from the bags; the attempt may then be made to give them up; they must, however, be immediately replaced as soon as the temperature again rises considerably, or the pains recur. As to the use of ice-bags, which I have often employed with women in childbed for more than fourteen days consecutively, and always resort to immediately for all severe pain in the abdomen when ice is easy to be had, I can only corroborate the statements of Behier. I have never seen unfortunate results in my cases, such as diminution of the lochia and lacteal secretion, or affections of the skin, especially gangrene."

Everything which emanates from any respectable authority upon the subject of puerperal convulsions—second only in importance to puerperal fever—will be examined with deep interest so long as the mysteries which surround its pathology remain unexplained. The author rejects the etiologic connection of the albumen in the urine with the eclampsia, as indeed we all must with the facts before us that it is often present without eclampsia occurring—that it is present in only 84 per cent. of those having eclampsia—that in 15 per cent. there is no albumen until after the convulsions have occurred. He also rejects the uræmic poisoning theory, both in its primary form of direct uræmia, and in its secondary phase, as adopted by Frerichs, in which the urea is transformed into carbonate of ammonia and becomes the active agent. He adopts, as far as our present knowledge will allow the adoption of any theory, that of Traube, Munk, and Rosenstein, which severs the connection of eclampsia with any renal disease, except in so far as albuminura increases anæmia and a predisposition to convulsions, and finds the cause in a state of hydræmia producing œdema and anæmia of the brain. He admits, however, that "a thoroughly satisfactory explanation of many cases of eclampsia has not yet been found," but thinks the one above stated well supported by clinical observation and experimental research.

Among the chapters worthy of especial note are those on sudden death during labor, on milk fever, so called, on affections of the pelvic ligaments, and on the eruptive diseases during the puerperal condition.

The work is characterized by plain and careful statement of facts, by the presentation of statistics, whenever statistics are of value, and the author's large experience with the numerous reports of cases give a clinical as well as a didactic character to it.

In the translation we should have liked to see some notes appended, some references, for instance, to the brilliant results attained by our own countrymen in the treatment of chronic inversion of the uterus. We think, also, that, for the convenience of readers, a table of the metrical system of weights and measures should appear on a fly-leaf of every volume in which this system is used in the text, so long as we are in the transition period between the two. The work of translation is exceedingly well done, the stiff and constrained style so often seen from an attempt to follow the author too closely verbally is entirely avoided—his views are faithfully presented in good English. J. C. R.

Art. XXXVI.—*Sanitary and Medical Reports for* 1873-74. By Officers of the U. S. Navy. Prepared for publication, under the direction of the Surgeon-General of the Navy, by H. C. Nelson, M.D., Surgeon, U. S. Navy, Assistant to the Bureau of Medicine and Surgery. 8vo. pp. 818. Washington: Government Printing Office, 1875.

This volume is the first of a series to be issued by the Bureau of Medicine and Surgery of the Navy Department. Its chief aim, as stated by Surgeon-General Beale, will be the sanitary improvement of the navy, not neglecting, however, the advancement of medical science, and often including information upon the climatology, botany, natural history, ethnology, and diseases, of the places and people visited by our national ships.

The first half of the volume is occupied with reports from individual vessels by the medical officers attached. These describe and criticize, first, the ventilation, warming and lighting of the ship, with the character of the food, water, and clothing supplied. The medical and sanitary history of the cruise is then recorded, with some account of the climate and sanitary character of the ports visited. We will notice a few of the more important recommendations and more interesting facts.

The traditional flooding of all the decks with water every Saturday, and of some of them daily, is productive of discomfort and disease. Paint or shellac upon some decks, with a much more sparing use of water, is advised. Even washing one deck on a Friday, so that it may be a dry resort from the next day's deluge, is suggested. Nothing but orders from the Department, however, can procure much deviation from the set customs of the service.

The sick-bay, or hospital, in our ships is generally badly located. It is advised that in the larger vessels it be removed from the berth-deck to the gun-deck, where ventilation and light can be better procured, together with relief from several objectionable conditions. The after-part, also, of the gun-deck is thought to be better than the old location in the bows.

A light hat or cap for warm climates is an urgent need. The clothing generally is not altogether what it should be. The whole system of providing clothing and bedding is here criticized. As it is, the recruit enters service

with a debt upon him of $70 or $80 for his outfit. This is demoralizing, and tempts to desertion.

A larger bread-ration, especially on account of new recruits being unable to eat the meat provided, is urged by Inspector Gihon. The present ration is but 14 ounces, and by the customary stoppage or relinquishment of one in five, is reduced in practice to 11¼.

Bathing facilities for the men are wholly wanting. In certain climates and circumstances, their absence is very injurious.

Inspector Hood suggests that the Department issue a code of sanitary regulations, to be made binding upon commanding officers. At present medical advice is often unheeded, and sometimes resented.

The experience of naval surgeons as here recorded certainly strongly supports the sanitary value of the regulation of prostitution. In France, Portugal, and Italy, where inspection is regular and thorough, cases of specific disease among the men were very few and very mild. In the Chinese port of Hong Kong, where stringent rules are enforced, a two months' stay was not followed by a single case of syphilis among the ship's company. The record is very different when our ships have visited ports where prostitution was unregulated, as in Barcelona.

In Greenland pulmonary complaints were found to be very prevalent. The Esquimaux are thought to be rapidly dying out. Their unventilated and crowded huts reach a temperature of from 80° to 100° F. when the outer air is perhaps 20° to 40° below zero.

Phthisis was found to be extremely prevalent all along the west coast of South America. In Chili 35 per cent. of deaths in public hospitals are due to this cause. The ordinary death-rate of Valparaiso, 48 per 1000, was raised by a smallpox epidemic to 93! In the treatment of dysentery, here very common, ipecac in large doses is the favourite remedy with the people and the profession.

On the island of Juan Fernandez, Surgeon Spear reports of the wild goats, whose progenitors have been wild for three hundred years, that "their young seem to inherit perfectly the domestic traits of the goat." This he noticed in two young ones kept for some time aboard ship.

A child of eighteen months old, in a Mexican port, was found to be subject to what seemed to be regular paroxysms of hysteria.

Elephantiasis Arabum is so prevalent in Rio Janeiro that one-tenth of the inhabitants are estimated to be affected. The same disease was observed to be extremely frequent in China, and the islands to the south and east. Other forms of leprosy, attended with anæsthetic, tubercular, and discoloured patches, were also found to be very common in China. Some surgeons do not hesitate to assign for it a malarious origin. It is asserted that when ague disappears in a district, from improved drainage, the other malady follows. A history of repeated attacks of intermittent, each one in succession attended with increasing pain and swelling in one leg, is said by one writer to be uniformly connected with every case of elephantiasis.

Smallpox is said to be never absent along the Chinese coast, and to prevail at times as an epidemic. The same writer says that the practice of inoculation is "tenaciously adhered to throughout this part of China." Every fourth or fifth person met, is marked with the disease, and many of them are blind or deaf. In the spring it is common to meet in the streets persons with the pustules developed on their faces.

A wonderful stoicism is reported to be exhibited by Chinese patients under

the knife, and before operations. Surgical cases do well even in circumstances which would seem to be very unfavourable.

Chinese medical practice deals largely with cauteries, setons, and moxas, together with charms, necromancies, and extraordinary drugs. Treatment, we learn, "is usually decisive in its effects, and lingering illnesses and bed-ridden invalids are not so common here as among us." The Japanese, whose practice has been the same, are eagerly adopting European and American methods. The well-meant attempts of the native physicians to change their practice, are, however, characterized by more zeal than discretion. With little or no knowledge of anatomy and physiology, they are not adequate to the judicious employment of the instruments and medicines which they so eagerly take up. For the next generation, however, the prospect is better. Several large hospitals are flourishing under accomplished medical supervision, and having medical schools connected with them. Religious notions have hitherto prevented dissections; but there are signs of speedy change in this respect. The people are cleanly and fond of fresh air, and generally healthy.

Part second, or the latter half of this volume, is composed of miscellaneous essays. Several of these describe epidemics of yellow fever, as observed on particular ships. A mild, continued fever, with debility, was noted by one writer as a forerunner of the outbreak of the epidemic, in the same manner as diarrhœa prevails before cholera.

A disease is described which is believed to be confined to certain portions of Brazil. It is an organic stricture of the œsophagus, terminating fatally after some months. In some districts it is so common as to be the cause of general dread, while a few miles off it never occurs, and is scarcely heard of.

A curious story is told of accidental poisoning by mercury. During a storm of some days' duration, the heavy rolling of the S. S. Wachusett caused the spilling of a quantity of this metal upon the berth deck. Here it rolled to and fro, hither and thither, and was in part very finely divided, and oxidized. Being in the tropics, the men were mostly bare-footed. Eight cases of ptyalism occurred within forty-eight hours, and soon sixteen more were on the sick list, besides fifteen less severely affected. Some few of the patients, only, got the metal also in their food, through the upsetting of their "scouse" upon the deck. Pains in the back and limbs, and very severe supra-orbital pains were complained of by all the patients. No febrile nor intestinal symptoms appeared. The mouth trouble was in several cases extremely grave.

In an essay upon recruiting in the navy, the faults of the existing system, and the difficulties encountered by the medical examiner, are well exposed. The suggestion that veteran imposters be tattooed upon one shoulder, we fear is not a safe one. An eminent physician of Boston was mulcted in heavy damages for branding a deserter during our late civil war.

Naval Surgeon Pilcher gives an historical sketch of the prevalence of small-pox in the U. S. Navy. It seems pretty clearly established that revaccination has not been performed with that care and precaution necessary to success in the circumstances. At sea, indeed, or upon foreign stations, efficient virus cannot always be obtained or preserved. Of over four thousand sailors, presumptively vaccinated in youth, one-eighth were attacked, and one in eleven or twelve of these died, in the recorded prevalence of variola upon U. S. ships. No place is better adapted to the spread of the disease than the confined and crowded decks of a naval ship. This ratio, therefore, is believed to represent the greatest liability to the disease in persons once vaccinated.

Another paper, by Surgeon Woolverton, especially represents the need in our navy of a more uniform and careful system of vaccination.

Four papers deal with the ventilation of ships. Fans, either to exhaust or supply air, can be easily and effectively attached to the propeller shaft in steamships. Pipes leading from all parts of the vessel into the heated space between the smoke-stack and its jacket, are also suggested. The lower masts, when of iron, may have their interior utilized in a similar manner. When painted black above the decks, the sun's heat creates in these a powerful ascensive current. In a British ship thus constructed, charcoal stoves were placed in the bottoms of the masts. This seems to us an admirable plan. The need of fresh air is very great. The peculiar construction and surroundings of ships render it extremely difficult to change the atmosphere of all parts. The odours upon a berth-deck in the morning are reported to be nauseous and oppressive in the extreme. Tests for carbonic acid, too, here given, indicate a most unwholesome foulness.

Trials of jaborandi, made by Dr. F. V. Greene, showed the drug to possess great power as a sialagogue and sudorific.

Caña Agria is a South American plant recently reputed to cure diabetes.

Several interesting pathological cases with autopsies are reported. Hypodermic use of sulphate of atropia is recommended in epilepsy.

Dr. Kidder contributes a somewhat full account of his experience with venereal disease in a hospital ship stationed at Nagasaki, Japan. He believes that gonorrhœa is too little cared for by naval surgeons. The more general enforcement of rest and low diet in the early stages, and a continued surveillance until recovery, would be better for the sailor, the service, and the health of the ports visited.

The same gentleman contributes a summary report upon the natural history of Kerguelen Island. But one mammal inhabits the island—a kind of mouse, believed to be descended from ancestors brought thither by whalers. Twenty-one species of birds, and a full collection of botanical specimens, were collected and consigned to the Smithsonian Institution.

This volume, unlike the one upon cholera from the same printing office, is handsomely printed upon good paper. There are, however, many typographical errors; and two whole sheets of sixteen pages each are wanting entirely, in the copy before us. We welcome this publication, as likely to result in benefit to the sailor, to the navy, and to the profession both afloat and ashore.

B. L. R.

ART. XXXVII.—*Specimen Fasciculus of a Catalogue of the National Medical Library, under the direction of the Surgeon-General, United States Army, at Washington, D. C.* Imperial 8vo. pp. viii., 72. Washington: Government Printing Office, 1876.

IN the number of this Journal for April, 1874 (p. 482), we had occasion to notice the appearance of a catalogue of the magnificent collection of books then known as the "Library of the Surgeon-General's Office," but now more appropriately designated as the "National Medical Library." That catalogue, though forming three large volumes, embracing in all over 2400 pages, contained only the names of authors represented in the library, with a list of anonymous works, journals, transactions of societies, etc., and was (if we may be allowed the expression) a mere bibliographical baby in comparison with the elaborate work of which a specimen is now issued. This work, as we learn from Dr. Billings's introductory letter, will, when completed, form no less than *five* volumes of

about one thousand pages each; and it will, we do not hesitate to say, if carried out as thoroughly and as carefully as it has been begun, constitute without exception the most valuable contribution to medical bibliography which has ever been made in any part of the world.

We are very glad to find that Dr. Billings has decided the question between the double and single-alphabet systems in favour of the latter; or, in other words, that he has so arranged his work that the student, having a reference to either the subject of a book, or its author's name, will not fail to find it without the trouble of hunting through different parts of the catalogue in his search. To illustrate the great convenience of the single-alphabet system we select from a single page (p. 71) six headings, to wit, *Ah' Mad, Ahmedabad, Ahmed-Nadim, Aibling, Aiken*, and *Aikin*; three of these are names of subjects, and three names of authors; but how many readers, if authors and subjects were catalogued in separate volumes, would know in which to look for each? The multiple-alphabet system is a favourite with the German writers, some of whom carry it to an extent which is almost ludicrous; thus the indexes to the famous edition of Cicero, published by C. G. Schutz, are no less than six in number, and occupy by themselves as many as seven volumes. The present writer speaks with some interest on this subject, as having had personal experience with both methods; and on the *experto crede* principle he most heartily endorses the plan chosen by Dr. Billings.

In classifying the subject titles, an anatomical arrangement has been as far as possible adopted by Dr. Billings, while numerous cross-references serve to facilitate the search for any particular subject without undue repetition; by the use of a variety of types, too, the catalogue is rendered more available for consultation than could be done in any other way.

As one of the most prominent features of the library is its very extensive collection of journals and other periodical publications, so a most important feature of the catalogue is its journal bibliography, which, under the proper headings, furnishes accurate references to the original memoirs and cases published in all the more important journals both of our own and of other countries. The amount of patient and persevering labour represented by this portion of Dr. Billings's work can hardly be appreciated; but that it has been a labour of love, it could never, we venture to say, have been accomplished.

We shall look forward with much anxiety for the completion of this catalogue, which, with Drs. Otis and Woodward's Medical and Surgical History of the War, will form a monument of civilization strangely begotten of the horrors of the battle-field, and will ever furnish future ages with a riddle deep as Samson's.

J. A., JR.

ART. XXXVIII.—*Recherches Physiologiques et Cliniques sur les Accouchements.* Par le Dr. P. BUDIN, Ancien Interne des Hôpiteau et de la Maternité, Membre de la Société Anatomique, etc. 8vo. pp. 36. Paris: Bureau du Progrès Médical, 1876.

WE have presented in this pamphlet four obstetrical papers. The first is upon the long questioned point, of the existence of relaxation in the pelvic ligaments prior to and during parturition, and the author claims to present a new means of determining the existence of motion in the symphysis pubis, that will be best understood by reference to a case reported in full, which we reproduce in a condensed form, as follows:—

At the close of March, 1875, Adeline L., far advanced in pregnancy, was admitted into the Maternité Hospital, having fallen and bruised herself on the hip in consequence of great difficulty in walking. When extended in bed she experienced no pain, but did so upon motion, especially under pressure over the pubic and sacro-iliac symphyses. She could only walk by supporting herself with her hands upon convenient objects, as a chair, bed, etc. She had a painful oscillating gait, and could not stand erect on one leg without falling in the attempt. In the recumbent position, by moving the lower extremities so as to bear alternately upward upon the innominata, a motion could be felt at the top of the symphysis pubis, indicating a change in the line of the pubic bones. Another expedient was devised and tested, as follows: The woman was made to walk, whilst the physician held his finger in her vagina with its tactile portion resting on the arch of the pubes, when the ascent and descent of the pubic bones alternately, could be readily distinguished in the sensation and motion imparted to the finger. On the first of April the woman was delivered, and ten days afterward could walk quite readily. There was still a perceptible motion at the pubes, but much less than when first examined.

Pursuing this plan of observation in more than 80 cases, Dr. Budin presents to us the following opinions, viz.:—

"With all pregnant women, there exists a certain degree of mobility in the symphysis pubis during the last months of pregnancy.

"This mobility increases as the termination of pregnancy approaches.

"It is more marked as a general rule in women who have had children, although the rule is not absolute. Slightly extended in primiparæ, it is much more so in women pregnant for the third, fifth, sixth, or eighth time. In the last case it is sometimes truly extraordinary, and it is astonishing to see women walk with so much facility, who present such a degree of motion at the top of the symphysis pubis.

"In contractions of the pelvis, we have not found, contrary to the opinion of Giraud and Auseaux, that the movements were more marked than in ordinary cases." (page 3.)

The author also remarks that there is no motion in women that have never had children; and that with multiparæ there is a minimum degree of mobility for a certain time after delivery. In a young girl of 17, suspected to be pregnant, but affected with ovarian dropsy; and another of 14, having a solid ovarian tumour, the vaginal examination during walking gave no sense of movement at the pubes. In a woman also of 45, with enormous fibrous tumours of the uterus, there was likewise no motion.

This mobile condition, if satisfactorily established, would appear indissolubly connected with advanced pregnancy, and might therefore become of value in some cases, to determine the existence of a fœtus in utero when the diagnosis is rendered obscure by a complication with morbid abdominal growths.

The second essay is entitled "*At what moment should we tie the umbilical cord?*" and embodies a number of experiments made at the suggestion of M. Tarnier at the Maternité Hospital. In 30 cases the fœtal cord was tied immediately after birth, and in 32, the time varied from a minute and a half to twelve minutes. In the latter, the cord pulsated for various periods up to ten minutes. In all cases the blood that escaped from the placental end of the cord was collected and measured; and after the placenta was delivered, the blood that would escape was allowed to drip out, and was also computed. The tables produced show a marked difference between immediate and delayed section in the amount of blood retained in the placenta. Under immediate section, the average escape directly after the separation averaged 98.4 c. c. against 11.2 c. c. in the latter, an average loss of circulation to the new-born fœtus of 87.2 c. c.,

which might be prevented by a few minutes' delay. This amount is computed by Dr. Budin to nearly equal a third of the blood contained in the vessels of a matured fœtus.

A third, or intermediate series of experiments tried in 13 cases shows a much diminished loss, but still nearly quadruple that obtained under ligation after entire cessation of pulsation in the cord. In these cases the infant was allowed to breathe two or three minutes before the ligature was applied, after which the pulsations continued from 1½ to seven minutes.

Upon these results Dr. Budin recommends the following rule of procedure: "*Ligation and section of the umbilical cord should not be practised until after its pulsations shall have ceased for one or two minutes.*" He also contends that the placenta is much more readily extruded under these circumstances than when it is turgid with the retained blood. In cases of *asphyxia* he advises not to bleed by the cord as a remedial measure, but to retain the placental connection until respiration is fully established and the pulsation of the funis has ceased; in which event there will be a loss of blood from the vessels of the fœtus, under the heart's impulse, to be returned from the placenta when the pulmonary respiration and circulation have become fully established.

The other articles in the pamphlet are mainly pathological. The *third* is a report of a case of infarctus of the kidneys, found in an infant that died whilst being delivered by the forceps. Each kidney was the seat of lithic obstruction in about one half of the pyramids. In the summit of each pyramid could readily be found a triangular deposit with the apex toward the extremity; and under pressure, between the fingers, a turbid fluid containing yellow pulverulent matter escaped. As this pathological change has been considered of value in a medico-legal sense, as evidence that the fœtus had lived, it is of great importance to know that it is not a perfectly reliable test, as has been thought by Virchow, according to whom this fœtus should have lived at least two days.

The fourth paper records the case of a pregnant women who died at nearly full term of violent hæmoptysis. The Cæsarean operation removed a fœtus which after a long trial bid fair to survive, but died of trismus next day. The woman was found to have two vaginæ and two complete uteri united from the vulva to the fundus; with one Fallopian tube and ovary to each uterus. The unimpregnated organ had become considerably hypertrophied from the effect of its intimate connection with its fellow.

R. P. H.

ART. XXXIX.—*De la Tête du Fœtus, au point de vue de l'obstetrique; Recherches cliniques et expérimentales;* Par le Dr. P. BUDIN. Imp. 8vo. pp. 149. Pl. XXXVII. Paris: Bureau de Progrès Médical, 1876.

THIS is the second monograph of Dr. Budin we have been called upon to notice in this number, and, as he is an active worker in obstetrical investigations, we will, no doubt, hear of him occasionally in the future. This volume is mainly taken up with a careful examination of the conformation of the fœtal head, to determine its normal or average size, by various measurements; and the changes in these diameters, effected in the passage of the fœtus through the pelvis of the mother. He obtains his *normal head* by an examination of a living fœtus delivered after death of the mother, by the Cæsarean operation; and the *average*, by comparing this with a number, delivered by the head and breech, measured after recovery from the alterations produced by pressure in

parturition. Numerous diagrams and cases are given, which should be examined to be well understood.

We have had several obstetrical observers at different times engaged in the same work among us, and the measurements of what are considered to be average heads have been pretty well agreed upon. The subject is one of importance in the general question of the mechanism of labour; the remedying of defective positions; and the relative ease of delivery by the feet and head: but the main question of relation of head and pelvis must after all be settled in each individual case. The same woman may require the operation of craniotomy in one case, to remove an impacted head, and within a year deliver herself of a living child without having a physician present, by a rapid and easy labour. We frequently find large plethoric women who were in early life small and spare, in whom the skeleton is small, and pelvis rather below the average, although properly proportioned. Such women, being in robust health, not infrequently breed large children, and have great difficulty in parturition. One such case we remember, who has a large family, all of whom required the forceps for delivery. Another lost several of her large-headed children, and had little or no difficulty with the remainder, particularly the females. Where the father is large and overgrown, and the mother under size, we may also have difficulty from excessive fœtal growth in some instances, as is not uncommon in the lower animals. But there is no rule upon this point, children taking their development from either side, being dwarfish or gigantic as the case may be. The main difficulty in parturition with large heads is not so much that the mother's pelvis is too small, as that its diameters are out of proportion, and not in correspondence with those of the head. A few minutes' work with the instruments will remove many an impacted head that only requires a little compression, and a little more force than the uterus is capable of exerting, where the pelvis is of normal configuration but a little under size. In one woman of this type, who had always been delivered by the forceps, we were called upon to assist in the birth of twins. The first came by the breech, was a female, and weighed eight pounds; there was some difficulty in delivering the after-coming head, but the hands sufficed. The second was a boy of nine pounds, and required the forceps for a few minutes, after some delay in the hope that the active labour might enable the mother to deliver herself. The uterine force in these robust women is often very great, although ineffectual, much more so apparently than in some delicate subjects who have rapid and easy deliveries upon all occasions, never having large-headed children.

We commend the work of Dr. Budin to those interested in the minute study of obstetrical science; and his *cephalometre* to any who may desire to investigate for themselves. R. P. H.

ART. XI.—*Mortuary Experience of the Mutual Life Insurance Company of New York.* From 1843 to 1874. 4to. New York, 1875.

IF the utmost luxury of binding, paper, type, and gilt edges can render mortuary statistics attractive, then this work must surely be so. From its heavy covers of brown morocco, to its tables of large, clear figures, and its richly coloured diagrams, everything is costly and in excellent taste.

The work consists of two distinct parts. In the first, which has a sub-heading of "Medical Statistics," the deaths which have occurred among the insured are examined, analyzed, and tabulated, from the point of view of the physician.

In the second part, or "Actuarial Statistics," the facts are presented as seen from the standpoint of the life insurance expert. Drs. G. S. Winston and E. J. Marsh were compilers of the first, and Actuary Wm. H. C. Bartlett, LL.D., of the second part.

Up to the end of 1873, 101,967 lives have been assured, while 5385 assured persons have died. The cause of death, arranged in nearly exact conformity to Dr. Farr's classification, is given for these decedents, in groups of one thousand in the order of time. In other words, glancing down one perpendicular column you note the death-causes of the first thousand persons dying assured; and in the next column to the right you find the same information for the second thousand, etc. Figures at the top show the period of time occupied in dying by each group. Owing to the growth of the business, as well as to natural causes, the time-periods have greatly diminished for successive thousands. The first was nineteen or twenty years, or 1843–62; and next four in succession are stated as follows: 1862–68, 1868–70, 1870–71, and 1871–73. (These figures we believe are not precisely as they should be; we think the last year of each group should be *one* smaller—and the word "inclusive" be understood.) By this happy thought in arranging the deaths, separate columns of percentages are not needed.

The larger mortality from diarrhœa and dysentery in the first and second groups—1843–1867—are thought to be attributable to the hardships and exposures of early California life, and of our civil war. Typhoid fever seemed decidedly to increase, from the first period to the second and third; and has at least retained its prominence since. Apoplexy shows a decided increase in the fifth group; but not a progressive one. And on adding together the deaths against the seven leading titles of brain-disease, we find little progressive increase, though there appears a moderate excess in the fourth group, which does not wholly disappear in the fifth. Cancer, with a mortality of 7 in the first thousand, has 27 in the last—a result we fancy rather of accident, or the small number of observations, than of greater prevalence of the malady. Indeed the compilers warn their readers against basing inferences on the small numbers which indicate the mortality from many diseases, and which vary greatly without apparent cause or method.

Consumption has caused 17.61 per cent. of the total mortality, as reported; but is believed to have been in fact accountable for some 20 per cent. This is one-third or one-half less than the general mortality from this disease among people of the age assured. Pneumonia, for some unknown reason, appears to have greatly increased, as a cause of death.

By records continued through many years, similar to these just described, and others presently to be mentioned, the company hopes to learn at what ages certain diseases are to be anticipated, in different parts of the country; what differences in longevity and disease-liability obtain between natives and the foreign-born; how long the medical examination of applicants affects their mortality—and to solve many other similar problems. In order to effect these purposes, we find tables showing age at death, nativity, residence at time of death, and year of insurance in which life ends. Three admirably devised tables exhibit the age of decedents—by separate diseases in each exact year of life, by groups of diseases in decennial periods of life, and again by diseases still further condensed into groups, in connection with the decennial periods. The two latter tables have, in red ink, the percentages of deaths by each malady in each life-period. The ten-years tables are extremely interesting and instructive. Beautiful chromo-lithographs exhibit at a glance the relative prominence of different death causes in six successive periods. The difference in *compara-*

tive fatality of typhoid and consumption in one direction, and of heart disease and urinary troubles in the other, is here very strikingly shown. The reader is reminded, however, that old people die much faster than the middle-aged; and that a *relative* diminution of deaths, say by consumption, does not necessarily mean that age confers partial immunity from that disease.

We next have three tables classifying the deaths as to nativity—first in detail, as to causes and places, and second and third with condensation of diseases into groups, and birth-places into larger divisions. Percentages are noted in the latter tables. As a rule, nativity seems to have influenced mortality but very slightly. As exceptions, natives show an excess of mortality from typhoid and malarial fevers, diarrhœa, cholera, and pneumonia. Britons, Hibernians, and Germans, lead the list of deaths from alcoholism. In deaths by apoplexy, the Scotch and the Germans largely exceed natives; but we believe the excess to be due to the small number of cases.

A group of tables, similar to the last, shows the cause of death in connection with residence at time of death. No important inferences can, as yet, be drawn from these tables.

The next triad of tables shows the causes of death, in detail and consolidated, in relation to the year or years during which the decedents have been insured. While the greater portion of deaths during the first year of insurance was from diseases which could not be foreseen by medical examiners, yet there are some which seem to indicate want of skill or care in examination, or concealment or misrepresentation on the part of the assured. Deaths by consumption in the first year amount to one-half its average percentage. By apoplexy, the mortality of that year is even greater than its average. Does this mean that, on feeling certain alarming warnings, men hurry to the office and procure insurance, without mentioning the vertigo, or rush of blood, or transient numbness? Cancer and alcoholism present the same state of facts; but the numbers are, perhaps, too small to warrant inferences.

Much further information in possession of the company still remains to be digested. We are promised, at some future time, tabulated facts as to occupations, physical condition and conformation, previous disease, hereditary tendencies to disease or to longevity, and several other important circumstances.

Concerning the second, or Actuarial division of this work, we shall speak briefly. Profound research, and the highest order of mathematical and philosophical talent, are brought into use in the discovery and application of the principles of life insurance. Even the explanations and deductions of Dr. Bartlett are in some cases scarcely comprehensible except to an expert.

We may mention, however, the fact that the mortality, during thirty year's experience, has fallen 20 or 24 per cent. short of the amount to be expected, according to the life-tables on which the premiums were based. A curious and almost solitary exception to this rule occurs in regard to the first year of insurance. For it is found that the proportion of persons dying in the first year of their insurance is a trifle larger than was anticipated from the standard tables. More careful selection of risks than is made in England, is Dr. Bartlett's explanation of the smaller death-rate among the assured of the New York company. The seemingly contradictory tendency of the first year's facts, he explains by saying that comparatively greater or less care in selection would scarcely show in the mortality so soon, and that the first year's deaths must always be in larger proportion due to acute illness, accident, and such causes as no caution in selection could prevent.

From causes which will at once suggest themselves, careful selection has much less protective power, both as to amount and duration, in the very young

than in persons fully grown. In persons insuring at the more common ages, the influence of selection must of course diminish from year to year, but probably never wholly disappears.

This portion of the work, like the former, has several elegant coloured diagrams. B. L. R.

ART. XLI.—*A Treatise on Surgery, its Principles and Practice.* By T. HOLMES, M.A. Cantab., Surgeon to St. George's Hospital. pp. xii., 960. Philadelphia: Henry C. Lea, 1876.

As indicated in the preface, this book "is intended to be to some extent an introduction to the more elaborate System of Surgery," of which Mr. Holmes is the editor. It is, therefore, mainly a *résumé* of these excellent monographs from which the author frequently quotes, while, however, he has not servilely followed them. The aim of the author, "to give a plain and practical account of each surgical disease and injury, and of the treatment which is most commonly advisable," has in the main been well accomplished. The student, and the practical surgeon, will find it in general a clear, concise, and practical guide which can be safely trusted, but no subject is treated as fully as would be desired by one who wishes an exhaustive study of any subject. But every such text-book is of value, for it makes a progressive step in some one direction which is sure to be appropriated in all subsequent books. The enormous improvement to be seen on contrasting our present school-books with those of twenty or thirty years ago has not been made by great and sudden leaps, but each book has gained a little on its predecessor in some one point, and the improvement is never lost. Were it only on account of the introduction of several instructive thermographs, this book would deserve especial commendation, for while the thermometer has rendered such excellent service in medicine, it has been too little appreciated by surgeons. American surgeons will also be glad to see that the comparative safety of ether as an anæsthetic is clearly recognized.

"The question of the relative safety of ether and chloroform is being just now anxiously debated. I have no wish to dogmatize on the subject, but I have used ether with great comfort for many years, and have never seen any but the most trivial inconveniences from it. . . . During the same time, I have also employed chloroform perhaps as commonly, and have been so fortunate as to escape any fatal accident from this in my own practice, and, as I have said above, never to see more than one death from it. But I think we can hardly resist the unanimous opinion of the American surgeons, founded on nearly thirty years of extensive experience as to the relative safety of ether, and if so we should only employ chloroform in exceptional cases." (p. 908.)

The most recent operations and apparatuses are generally noticed. Smith's mouth-gag for bloody operations on the mouth, the extirpation of the larynx for cancer (though Billroth is not named in this connection), Levis's use of horse-hair in aneurism, Esmarch's bandage, etc., are incorporated in the work, and good common sense in general marks the judgment that is passed upon them. As an illustration of this good sense, let us quote the following on varicocele:—

"Sir A. Cooper said, with much truth: 'Varicocele should scarcely receive the title of a disease, for it produces in the greater number of cases no pain, no inconvenience, and no diminution of the virile powers.' . . . The number of cases of varicocele which require serious treatment are very few indeed, and any surgeon who operates frequently for varicocele must operate on many

cases which he would have done better to let alone. I do not deny that such operations may be sometimes required under circumstances which I will immediately point out; but the great majority require nothing but a bag truss." (pp. 839–40.)

The operation of Mr. H. Lee (compression between two needles and subcutaneous division of the veins) which he commends, we do not believe to be so simple and so innocuous as the procedure we have always followed of simply passing a loop of silver wire around the veins, twisting it subcutaneously, cutting it off short and allowing it to remain in the scrotum. There is no hemorrhage, the inflammation is slight, and no ill-results follow the retention of the wire.

The theoretical part of the work in general is good, though too little attention is given to pathological anatomy—the basis of all our rational modes of treatment. The doctrine of inflammation as viewed by the modern school of pathologists is unhesitatingly adopted in a very short statement of the main facts on which it is based. He admits the "Sarcomatous Tumours" as an intermediate class between the "innocent" and the "carcinomatous," although he regards this classification as neither good nor likely to be permanent, "but, as it has lately come much into vogue, it seems better for the present to adhere to it." The whole chapter on tumours (pp. 346–376), while it deals very briefly—indeed too briefly—with their pathology, is an excellent practical compend of their clinical characters and treatment. This practical characteristic is seen again in his judgment on Lister's "Antiseptic method." While careful not to commit himself to the germ theory on which it is based, he yet favours the method for the results achieved by it.

Some parts of the work seem decidedly disproportionate in elaboration and importance. Thus, in the chapter on ulcers, twenty different kinds are enumerated in seven pages, while the consideration of the general subject of dislocations is most unsatisfactorily discussed in less than two pages, and the treatment of fracture of the neck of the femur is disposed of in a half page. He is a strong advocate of the, to us, rather antiquated Desault's or Lister's long splint in fractures of the femur, though he alludes to the anterior wire splint and to Buck's apparatus. In the latter, both in the text and the illustration, the counter extension he recommends is by means of a perineal band; this is very rarely needed, if the foot of the bed be raised a few inches. The mechanical conveniences attained by this procedure render it very important.

A number of omissions of some importance should be pointed out, although in a work including the whole field of surgery they are not to be wondered at. Thus, under hemorrhage no allusion is made to Spiers' valuable needle. Sir James Y. Simpson is not named, either in connection with chloroform (the index reference to which is wrong), or with acupressure, nor is the aspirator spoken of in paracentesis pericardii. We were also somewhat surprised to see no allusion to Dr. Marion Sims, in the article on Vaginal Fistulæ, nor to Dr. S. Weir Mitchell, either in the chapter on Snake-bites or Nerve-wounds, while, excepting a foot-note of two lines and a half on page 345, the whole results of our late war as embodied in the unrivalled volumes and circulars of the Surgeon General's office, are entirely ignored. Some of the illustrations, especially of pathological specimens, are obscure as drawings, and only moderately good as engravings.

W. W. K.

ART. XLII.—*On Poisons in Relation to Medical Jurisprudence and Medicine.* By ALFRED SWAYNE TAYLOR, M.D., F.R.S. Third American from the third and thoroughly revised English edition. With 104 illustrations. 8vo. pp. 788. Philadelphia: Henry C. Lea, 1875.

SIXTEEN years having elapsed since the appearance of this work, a thorough revision was necessary, and in many instances this has involved remodelling and rewriting as well as the introduction of new matter which has risen into importance during this time. General observations in relation to absorption by external application, hypodermic injection, and the elimination of poisons, of valuable application, are to be found in the preliminary chapters. Here also, the process of dialysis of the late Professor Graham is clearly described as affording the means of separating soluble crystalloids from substances of a non-crystalline character. The use of this method is not insisted on except for preliminary testing, on the ground that it is impossible to separate the whole of the poison, and that it frequently occurs that a small quantity of organic matter passes through the membrane at the same time as the poison. In the examination for strychnia only, does he present this process as available, referring to its successful use by Dr. St. Clair Gray, of Glasgow. A higher opinion of this method had been impressed on the writer by a few experiments on its use, parchment paper being employed, and that in the majority of cases in which time was allowed, it should be used as a valuable preliminary step, when, if successful, it may give indications of much importance, especially where the poison may be in small amount. It, moreover, when properly performed, should not introduce any more material into matter under examination. Spectrum analysis is also noticed, but "even this delicate method of research has failed to throw any satisfactory light on the changes produced by poisons" in the blood.

The subject of antagonism of poisons is noticed, and it is stated, that, although some of the powerful remedies given in poisonous amounts appear to be antagonistic, there is absence of proof that they mutually act in the blood without being attended with danger to the patient, Dr. Fraser having shown, that, though this antagonism may be exerted within certain limits, beyond this death may be caused by the combined action of both substances. In the classification of poisons, a new subdivision of Neurotics, "cerebro-cardiac," has been introduced. In the detection of poison, much stress is laid on the examination of the urine as furnishing a clear proof that it has been taken and passed into the blood, and in cases of simulated poisoning, or imputed attempts of this kind, it gives the necessary discriminating proof whether the poison found in the matters said to be ejected may have been administered, or subsequently introduced. Few persons would be willing to take the risk necessarily incurred by swallowing the poison for the purpose of sustaining the impression they desire to produce. The case of General Ketchum is here cited as one in which this proceeding would have spared much of the conflict of opinion which characterized that case.

The very responsible position in which the physician may be placed when called to cases in which the symptoms may indicate either disease or the effect of poison should call attention to this point, in which many valuable remarks and criticisms on cases which have attracted much attention will be found. The clear and decided opinion on this and many other points of practical bearing, up to the time in which the material for chemical research is placed in the hands of the expert for examination, deserve the study of every practitioner,

lest by his acts the guilty may escape or the innocent suffer. The neglect of many of the plainest requisites in these points are frequently brought to the notice of those who are engaged in the final examination, generally arising from inexperience or the want of thought or knowledge, as to the precision and accuracy required both in their own operations and the prevention of the interference of others.

On the subject of the individual poisons the changes are too numerous to be noticed in detail. They consist principally in the omission of matter or cases of inferior value, and the substitution of others of greater significance. Thus new and more simple methods of research, tests new or hitherto little used, observations on the relative value of their results will be found scattered throughout, so as to bring the subject up to the increased knowledge and experience of the present day. New remedies, and others which though previously known had not become common, are introduced, and receive the share of attention their importance demands. Of these a few may be enumerated, as carbolic acid, the aniline colours, absinthe, chloroform, chlorodyne, chloral, etc. In this edition illustrations of the crystalline form of those of marked character are introduced. These are microscopic in character, and exhibit the great additional aid that may be obtained by this mode of investigation, especially in experienced hands. The researches of Guy and Wormley are duly noticed.

Owing to judicious pruning, the bulk of this edition is not materially increased, and the additional number of pages does not adequately represent the increased value of the work, a satisfactory estimate of which can only be obtained by actual comparison throughout with those previously issued. In typography and execution it resembles the second edition in all respects.

R. B.

ART. XLIII.—*Diseases of the Nose and its accessory Cavities.* By W. SPENCER WATSON, F.R.C.S. Eng., B.M. Lond., etc. etc. 8vo. pp. 472. London: H. K. Lewis, 1875.

THE object of the author of this volume, as stated in the preface, was to supply the want of a treatise in the English language on the various diseases of the nose. The most extended account of these diseases was hitherto contained in Holmes's *System of Surgery*. Our author's effort has been to collect from various sources, in our own and in foreign languages, all of importance on these subjects, and to present his gleanings, duly arranged and classified, with the addition of his own original contributions.

While we are surprised at the extent of his researches in some directions, there are others in which we think he might have pursued them still farther with advantage. Our American contributions to the surgery of this department have, in many instances, received their due meed of praise, and our author has evidently kept *au courant* with much of our periodical literature; but some of our most important records on this subject have apparently escaped his notice. The field is rendered quite extensive by the addition of the "accessory cavities," and yet we question whether, in these very particulars, the work is any special addition to our stock of knowledge. The diseases of the Antrum of Highmore have been treated so thoroughly in the classic work of Mr. Christopher Heath, that but little remains to be said upon them; and the section upon the lachrymal sac and nasal ducts presents the subject in a less exhaustive manner than many of the ophthalmological treatises *pur et simple*. But we would not with-

hold our high meed of praise to the author, for giving us a valuable and concise view of all that pertains to the region which he has entered.

In the arrangement of the work there are, as it seems to us, one or two errors of judgment. The fanciful divisions of sections and subsections present no advantages over the more common terms, chapter, and section. The large and most interesting collection of cases, which has been added in an appendix, might perhaps have been more profitably distributed through the text, in their proper places. As they are now arranged, it becomes rather wearisome to turn from the text to read the illustration, and, on the other hand, if we read the illustration first there is no reference to the text. And, again, if the plates, of which there are five, well executed, too, as are the most of them, had been placed together at the end of the volume, the reader would have been spared, in some instances, the inconvenience of turning to the index of plates to know where to find the illustration to which reference is made. These are, of course, minor points, but they all enter into the ideal of an entirely satisfactory book. We will give the reader a glance at the table of contents, and at some of the more striking points in the work.

The first section is devoted to the anatomy and physiology of the nose and the nasal fossæ. These may be regarded in four aspects: "1, as a sense organ; 2, as a part of the respiratory apparatus; 3, as part of the face and of the mechanism of expression; 4, as part of the vocal mechanism." The olfactory region proper is limited "to the upper half of the septum, the superior turbinated bone, and perhaps half of the middle turbinated bone, together with the under surface of the cribriform plate of the ethmoid." With regard to the physiology of olfaction, our author says:—

"Taking into consideration these two features common to odoriferous bodies, viz. (1), their organic origin, and (2) their ready oxydizability, we may perhaps conclude that *tendency to change* of a chemical kind is an essential quality of odorous bodies." And again: "However much we may hesitate to conclude from Professor Graham's observations that olfaction consists essentially in an oxygenation of the odorous substance, and in the stimulant effect of that chemical process upon the sentient nerves of the olfactory region, we may yet look hopefully upon this theory as the germ of a rational classification of odours."

The next section opens with a description of the instruments and procedure necessary in rhinoscopy. As a means of illuminating the anterior nares, the speculum of Fränkel is considered the most advantageous. The difficulties of posterior rhinoscopy are fully recognized, and the best methods of overcoming the intolerance of the palate-hook are found in the local application of lumps of ice, and in accustoming the palate to the use of the instrument. Non-ulcerative affections of the mucous membrane constitute the *subsections* of section first. In the treatment of catarrh our author is strongly in favour of the douche, as by Thudichum's apparatus, and files an exception to Dr. Roosa's theory, that it produces deafness. In epistaxis where plugging of the nostrils becomes necessary, the author advises the use of an apparatus devised by Dr. Rose, in preference to the canula of Bellocq with its accompanying plug. The wood-cut of this instrument resembles Molesworth's dilator, and we do not doubt that it would prove serviceable and of easy application. We observe, under the treatment of mucous polypi, an instance of the author's careful collection of all that pertains to his subject, in his quotation from the *Medical Record* of 1868, of a case of successful removal of a nasal polypus (our author frequently uses as the singular *polype*) by the injection of a solution of perchloride of iron. Under the stimulus of the same article we applied that method of treatment in one case, entirely without success, and were obliged to resort to the extraction with for-

ceps. Dr. Watson refers to the frequency of reproduction of these growths, and we are reminded in this connection of a remark of Maisonneuve, that in order to avoid with certainty this reproduction, it was necessary that the forceps should bring with them a small portion of the bone from the covering of which the polypus grew.

Section III. treats of Ulcerative Affections of the Mucous Membrane of the Nasal Fossæ; and among these we find an interesting account of the symptoms and pathology of glanders, as it affects the human subject. The chief characteristics as to its diagnosis are "the inflamed pustule on the skin in the early stage, and the copious yellow, sometimes viscid, discharge from one or both nostrils." A supporting treatment, and local applications, of carbolic acid lotions, or a solution of creasote, seem to furnish the chief means of resistance.

In the next section, Ulceration of the Bones and Cartilages, we find that our author treats the erosive syphilitic ulcer in what we might call the usual manner, *i. e.*, "the free use of the douche, the mercurial vapour bath, or full doses" (20 to 40 grains) "of iodide of potassium, with sarsaparilla and the judicious use of caustics." Under the latter he prefers the acid pernitrate of mercury, applied by means of a bit of pointed wood. He says: "There are two objects attainable by the use of caustics in syphilitic spreading ulcers. 1. It destroys the virus, and leaves a healthy granulating surface. 2. The caustic shuts up the exposed vascular channels in the bones by substituting for the unhealthy ulceration a plastic inflammatory action, and thus the poison is prevented from entering the circulation." In case of necrosis, and an operation for the removal of the sequestrum, the author seems to favour the operation proposed by Rouge of Lausanne, which consists in "lifting the upper lip and nostrils together, having first freed them by incisions through the mucous membrane of the mouth, and divided the cartilages at their attachment to the upper jaws. The anterior bony nares are thus completely exposed, and a very good view is obtained of the interior of the nasal fossæ, with a large space for the introduction of instruments."

In a subsequent section he also refers to this operation as a method of removing tumours of the antrum, and again for the removal of tumours in the nasal fossæ, and naso-pharyngeal cavity. That it results in no external scar is evidently in its favour; but we question whether, in the removal of tumours, it would be as available as the procedures of Sir William Fergusson or Langenbeck; the working space, it seems to us, would not be sufficient.

We would especially commend Section V., on Diseases of the Frontal Sinuses, to the careful consideration of the reader, as presenting all that relates to the subject in a manner not elsewhere to be found. The next two sections relate to the antrum of Highmore, and the lachrymal sac.

Under Section VIII., of Diseases of the Skin, the author acknowledges his indebtedness to Dr. Tilbury Fox. Our author has given a clear and concise account of the various forms of these diseases as they affect the nose. We observe, in the treatment of lupus, that he quotes from the last volume of Hebra and Kaposi, that their favourite application is Cosme's arsenical paste. We know that times change, and men change with them, but we have not yet forgotten with what a glow of satisfaction the distinguished Professor would bore the solid stick of "*Höllenstein*" into the nodules of nearly every "*armer Kerl*" afflicted with this terrible disease.

The Tumours of the Nasal Fossæ, and Naso-pharyngeal Polypi form the subject of the next section. The diagnosis between the different tumours, here to be found, is very admirably laid down, and will well repay careful study. The formidable operation requisite for their removal is well described accord-

ing to several methods. We agree with the author that the process of Verneuil, of plugging the posterior nares, would in most cases be "likely to impede rather than facilitate the operation." The success of Dr. Thudichum in the use of the galvano-cautery is worthy of note.

Section X. is upon Injuries of the Nose, comprising contusions, fractures, and dislocations, and injuries with the lodgment of foreign bodies. Under the treatment of fractures, our author recommends the use of Mr. Adams's ivory plugs in those cases where it is difficult to retain the nasal bones in position. The subject of the following section is Malformations, Distortions, and Mutilations of the Nose, and Rhinoplastic Operations. Under the first of these heads the author gives in detail Mr. Adams's method of forcibly straightening the nose, and holding it in place by plugs, or by a screw-compressor, or by the "nose-fracture truss," which latter is an adjustable truss-pad, with its bearing upon the nasal bone, and attached to a band passing round the forehead. Various mechanical devices for remedying mutilations are referred to, and special and deserved credit is given here, as in several other parts of the volume, to our countryman, Dr. Garretson, and his work on Oral Diseases and Surgery. The history of Rhinoplasty is given in a succinct manner, and particular attention is bestowed on the operations of Mr. John Wood, and Mr. Francis Mason, as well as that of their distinguished predecessor Dieffenbach. We regret that our author, who is usually so alert to all that has been published, should have overlooked the valuable record of cases by Dr. Buck. But after all that may be said and done, we cannot help thinking that the future of handsome noses, in so far as they are the work of art, lays rather with the mechanician than with the surgeon.

The remaining portion of the work is upon Functional Derangements, Intracranial Complications, and the Function of Smell in its relation to Hygiene. The term *anosmia* is introduced as indicative of the loss of smell, and the danger is pointed out which "*anosmic individuals*" run, from being secretly poisoned by the emanations from their own sewers!

At the close of the volume there is, as we have said, a closely printed appendix of seventy-five pages, containing reports of eighty cases illustrative of the text; and we repeat that many of these are of great value and interest. A carefully prepared and minute index is added, and, without such an index, we claim that no book is complete.

We have thus cursorily noticed the work of Dr. Watson, and we are sure that the voice of the profession will be uttered in no uncertain tones of praise and satisfaction at his production. It stands by itself, the leading monograph upon this subject. Nowhere can the practitioner turn to find, more completely under his eye, all that the field embraces. We have only to add that the letter-press is clear and handsome, and only a few typographical errors have eluded the proof-reader. The plates are well done, but the wood-cuts are certainly far inferior to their surroundings. E. T. C.

ART. XLIV.—*Illustrations in Clinical Surgery.* By JONATHAN HUTCHINSON, F.R.C.S., etc. Fasciculus III. Folio, pp. 45–62. Philadelphia: Lindsay & Blakiston, 1876.

THIS fasciculus of Mr. Hutchinson's work follows its predecessors with commendable promptness. A careful inspection shows that it contains cases of

interest, although the plates are hardly as likely to attract attention as those contained in the first two numbers.

The first picture is an uncoloured lithograph, showing the appearance of a bony node of the arm, caused by inherited syphilis, and the history of the case is recorded in evidence of the accuracy of the diagnosis.

The next plate, or No. X. of the series, is a representation of cheiro-pompholyx, dependent upon disturbed nervous action, which appeared to have its origin in indigestion. While using the term pompholyx Mr. Hutchinson does not regard the case depicted, as in any way allied to true pemphigus.

In the letter press explanatory of plate No. XI., it is assumed, and to us it appears like only assumption, that the diseased teeth represented, owed their depraved condition to the use of mercury during infancy. Our experience has taught us that children are very rarely salivated, and we do not think Mr. Hutchinson makes out a clear case. The plate is, however, valuable, as showing the difference between the notched teeth of inherited syphilis, and teeth in which the enamel is diseased from other causes.

Plate XII. shows the post-mortem appearances of cases of chronic rheumatic arthritis. It is but rarely that the surgeon has an opportunity of examining the small joints which are most commonly affected by this disorder. The appearances represented are peculiar and possess value, although they do not aid in clearing up a doubtful diagnosis as so many of these illustrations do.

From the rapidity with which the numbers of this work follow each other, we should suppose that the publishers of them were meeting with the success which their enterprise deserves. As in the former parts, the execution is unexceptionable, and we anticipate a large demand for the work. S. A.

ART. XLV.—*Inhalation in the Treatment of Disease; its Therapeutics and Practice. A Treatise on the Inhalation of Gases, Vapours, Fumes, Compressed and Rarefied Air, Nebulized Fluids, and Powders.* By J. SOLIS COHEN, M.D., Lecturer on Laryngoscopy and Diseases of Throat and Chest, in Jefferson Medical College. Second Edition, revised and enlarged. 12mo. pp. 392. Philadelphia: Lindsay & Blakiston, 1876.

WHAT strikes one particularly in each of the many contributions made by Dr. Cohen to the medical literature of the branch of study in which he has become so well known, is the candid spirit and thoroughness with which his investigations have been conducted. Of this we are cognizant already by the perusal of, and frequent reference to, his work on Diseases of the Throat; his exhaustive treatise on Croup, in its relations to Tracheotomy, and many scattered articles from his pen. In the first edition of his book on Inhalation, its Therapeutics and Practice, these qualities are no less conspicuous than in his other works. Hitherto there has been an objection, however, to his publications. They usually lack order. And this is especially true of his descriptions of disease.

Complete as they may be, more method is at times desirable. In the perusal of his voluminous treatise upon Throat Affections, this deficiency is apparent even to the casual reader. Much of personal experience, and numerous collated facts are there recorded; but both are badly co-ordinated, and under one heading we are apt to find passages, which properly belong under another. We are glad to note that this short-coming is to a considerable degree remedied

in the present edition of Dr. Cohen's work on Inhalation. In its general arrangement, there is a marked improvement upon that of 1867. More method, the fruit of careful revision, is evident in the subdivisions of separate chapters. In one instance the order of parts is inverted, viz.: inhalation of nebulized fluids now occupies Part II. and not Part I., as in the first edition, and an additional part is made under the title of medicated atmospheres. Part I., in which the inhalation of airs, gases, vapours, and fumes is considered, is much augmented in its context, and new illustrations are interposed here and there. The drawings of apparatus are well executed and increase the practical character of the work. That portion of it which relates to the physiology and therapeutic uses of condensed and rarefied air, is almost entirely new, and is now one of the most important chapters of the volume. It contains the results, acquired within a few years in this department, by scientists in Germany and elsewhere. The apparatus of Waldenburg, of Biedert, of Fränkel, and still others—are accurately described.

Their employment in the treatment of certain affections of the thoracic viscera is presented. But while the laws of the pneumatic method are made known with completeness, their rational application to the cure of disease is not given with sufficient details. When more fully understood and accepted, we anticipate many good results from this treatment in well-adapted cases. Meanwhile it is a source of congratulation to have this subject treated of at some length in an American work by an author of merit. With respect to the manner of inhaling, Dr. Cohen is emphatic in his recommendation that it should be well done, if done at all. When, for example, by an effort of suction a medicated vapour fills the mouth, it is essential to make a strong inspiratory effort immediately afterwards, so that with the entrance of air the vapour may be drawn far into the lungs. With debilitated patients it may be necessary to employ the force of compressed air from suitable apparatus. To an imperfect manner of inhaling is often attributable the poor results achieved by this treatment. In the inhalation of the vapour of water, the ethereal volatile oils, or the decoction of aromatic plants, the temperature of the vehicle should be moderate. When it ranges from 110 to 120° Fahr., it is usually sufficient, and a great mistake is to have the water from which vapour rises too hot.

In this we fully agree with Dr. Cohen, inasmuch as we have learned to consider too hot inhalations a not infrequent cause of inflammatory disorders of pulmonary structure.

In speaking of his own experience in membranous croup with inhalation of the hot vapour from slaking lime, Dr. Cohen writes that, "in some dozens of cases, in private and in consultation practice, he has seen life apparently rescued through its agency." And he adds that, "of all the methods of treating croup advanced of late years, he knows of no other that has held its ground so well as this." Parts II. and III. are mainly a reprint from the first edition of the work, and we have not found there matter for new discussion.

Upon the subject of medicated atmospheres Dr. Cohen is brief. Nevertheless he evidently attaches much importance to "respiratory diet" in the treatment of certain cases of phthisis and chronic bronchitis, and his plan by which it may be utilized at home is worthy of trial by others.

In conclusion, we commend this work to those who desire to possess a thorough insight of what pertains to the science and art of inhalation in all its varieties. B. R.

ART. XLVI. — *International Exhibition*, 1876, *Official Catalogue*. 4 vols. Philadelphia: John R. Nagle and Company. 1876.

THE International Exhibition held at Philadelphia in 1876, in commemoration of the Centennial Anniversary of American Independence, was on the 10th of May formally opened by the President of the United States.

Over two hundred and thirty-six acres on the west bank of, and overlooking, the Schuylkill River, in one of the most beautiful portions of Fairmount Park, have been inclosed, and there have been erected thereon about one hundred and fifty separate buildings designed for the use of the Exhibition, and covering an area of seventy-five acres of ground.

The principal Exhibition buildings are six in number, viz.: The Main building, Art Gallery, Machinery Hall, Agricultural Hall, Horticultural Hall, and United States Government building, and have a floor space of a little over fifty acres. As compared with the preceding International Exhibitions the total area under cover is larger by one-half than that of the largest, which was held in Vienna in 1873.

Within this vast area the civilized nations of the world have gathered together the evidences of their advancement in the sciences, arts, literature, manufactures, mining, and agriculture, forming an exhibit intensely instructive to the visitor. From other sources, information will be gained of those portions of the exhibition which interest the general public. The medical and sanitary exhibit, to which we propose to call the attention of our readers, and in which they are more particularly interested, we regret to say is neither so comprehensive nor so full as we had hoped to find it, owing probably to the limited interest it commands—an interest by no means commensurate with its importance.

The most extensive as well as the most important of the medical exhibits is made by our own government. The representation of the Medical Department of the Army is in charge of Assistant Surgeon J. J. Woodward, and is placed in a post hospital which has been erected on ground adjoining the Government building. This hospital, which is a model of the kind used at our military posts in times of peace, has been erected according to the approved plans for a regulation post hospital of twenty-four beds. It is built of wood, and consists of a central administration building, and two wards arranged as wings, each accommodating twelve beds. The wing for each ward is forty-five feet long, twenty-four feet wide, and fifteen feet high in the clear from floor to ceiling. Attached to each ward, at the outer end and behind, is a room for the earth closet, nine feet square. The administration building is thirty-five feet front by thirty-nine feet deep, and two stories high, with a back building 40 by 14 feet. Each story of this building is twelve feet high from floor to ceiling. A verandah ten feet wide surrounds the building with the exception of the kitchen. The floor of the whole building is raised three feet from the ground, and is supported on timber posts.

The wards have ridge ventilation for summer, and in winter are heated by two open fireplaces, placed back to back in the centre of the ward, and inclosing a ventilating air chamber between them.

The first floor of the administration building contains the office, dispensary, nurses' room, bath-room, and two closets, and in the back building, a mess-room, kitchen, and pantry. The second story contains the steward's room, attendants' room, store-room and spare room, and in the back building an isolation ward over the mess-room.

One ward of the model hospital is fitted up as such; in the other are numerous interesting exhibits, among which the models of hospital cars deserve particular mention. These models, five in number, represent those methods of adapting the ordinary rolling stock of American railways to the transportation of the sick and wounded which were found most satisfactory during the war of 1861–5. They are constructed on the scale of one inch to the foot, and are complete in every detail.

No. 1 is a model of a surgeon's car, such as was used in the hospital train of the Army of the Cumberland. It represents an ordinary passenger car, with the seats removed, and with partitions and fixtures introduced, so as to lodge the surgeon in charge and his hospital steward, and give accommodations for the dispensary, with an office for the transaction of business.

No. 2 represents a kitchen car, belonging to the same train, which was constructed out of an ordinary passenger car with the seats removed, and with partitions and fixtures introduced for a kitchen, store-room, and dining-room.

No. 3 is a model of a car for sick and wounded, which was also constructed out of an ordinary passenger car, from which the alternate seats were removed, and mattresses supported on slats were placed between the remaining seats. On one side a wide door is constructed so as to admit of the easy passage of the severely wounded in litters. Eleven beds are thus formed, above each of which a field-stretcher, with its handles shortened, is suspended by means of two iron hooks, one at each end, fixed in the side of the car, and two iron rods terminating in hooks, which are fastened above to the roof of the car. Twenty-two beds are thus provided in each car. The lower beds, however, are so wide (about forty-four inches) that when deemed expedient two patients can be carried in each, thus increasing the carrying capacity of the car to thirty-three patients.

No. 4 is a model of a hospital car specially devised and built for the purpose, and used in the Army of the Potomac. These cars were forty-five feet long and eight and a half broad, inside measure. Six and a half feet were partitioned off at one end for the use of the medical officer.

"In the rest of the car, ten beds were constructed, by placing seats like those used in passenger cars, but without backs, at suitable intervals. On these, slats were laid for the reception of mattresses. Ten beds were thus formed, which, however, were narrower than those of the hospital car of the Army of the Cumberland (viz. thirty inches wide), being intended for the reception of a single patient each. A passage-way three and a half feet wide was thus left. Above each of these beds two ordinary field-stretchers, with their handles shortened, were suspended in the following manner: Opposite the middle of each of the seats supporting the lower beds, an upright wooden post was erected, extending from the floor to the roof, and firmly fastened at each extremity. Each stretcher was supported in its place by means of two iron hooks (one at each end) fastened to the side of the car, and two leather loops (one at each end) fastened to the upright posts. Beds were thus provided for thirty patients in all."

In order to give ready access to the wounded on stretchers, the door at the end of the car was made three and a half feet wide.

No. 5 is a model of a freight car fitted up for the transportation of the sick and wounded after the plan devised by Grund, and endorsed by the Prussian Commission of 1868.

"It consists in supporting three ordinary field stretchers in the front, and three in the rear part of the freight car, twenty feet long, by means of transverse wooden bars, resting on semi-elliptical plate springs. The springs are spiked at one end to the flooring, to keep the bars stationary, while at the other

end are rollers, to permit the yielding of the springs. The latter are surmounted by U pieces, or clips to receive the cross-bars. Four cross-beams and eight springs constitute the outfit requisite for the reception of six litters."

From the pamphlet descriptive of these models we learn that Assistant Surgeon Otis has recommended that military trains going to the front with stores should carry, suspended under the roof, a sufficient number of these springs, with the spikes required, to enable the car on its return, instead of going back empty, to carry comfortably, on beds improvised by means of the ordinary field stretchers, a number of sick or wounded, corresponding to its size. Dr. Otis has also suggested that these springs might be utilized in the conveyance of the wounded in ordinary army wagons.

In the army of the Cumberland, where hospital trains were extensively used during the late war, it is stated that the smoke-pipes of the locomotives were painted of a brilliant scarlet; the exterior of the hood, and of the tender, were painted of the same conspicuous colour, and at night beneath the headlight of the engine, three red lanterns were hung in a row. These signals were always recognized, and the trains were never fired upon or molested in any way.

In this same room are also exhibited models of the ordinary steamboats of our interior rivers and of sea-going merchantmen as adapted during the late war to the transportation of the sick and wounded. It would be impossible, however, without numerous diagrams which are not at our command, to make an intelligible description of these vessels.

Arranged in cases erected around the wall of this ward, are numerous pathological specimens from the Army Medical Museum, and some beautiful microphotographs, made by Dr. Woodward, adorn the window-panes.

The barrack hospitals of the late war are represented by five models. Of these, one is a model of the barrack ward which served as the unit, and by the repetition of which, "General Hospitals" were formed; the other four represent four of these general hospitals, viz.: The Lincoln, at Washington; Hicks, at Baltimore; and the McClellan and Mower, at Philadelphia. A full description of these, with perhaps a single exception, has been already published elsewhere.[1]

The other rooms of the hospital are devoted to the exhibition of medicines, medical and chemical stores, and surgical instruments, medical books, blanks, chemical apparatus, mess furniture and utensils, and kitchen utensils, which are issued to medical officers on requisition. In the second story are exhibited artificial limbs, such as are issued gratuitously to those who lose their limbs in the service, litters, and stretchers, medical panniers, army medical chests, etc. In the office are also to be seen specimen copies of the various valuable publications which have recently emanated from the Surgeon-General's office. Here the bibliophile will be particularly interested in the reproduction by photography of the title or a specimen page of some of the oldest and rarest works in the National Medical Library.

With its usual intelligent liberality the Surgeon-General's Office have published pamphlets descriptive of the more important of its exhibits.

In the rear of the building are exhibited three hospital tents pitched end to end, such as are used in the field, and which are familiar to our readers, constituting the unit, by the repetition of which the necessary capacity is obtained. Here are also to be seen Perot & Co.'s army medicine wagons, Perot & Co.'s army mess chests, ambulances, etc.

The contribution of the Bureau of Medicine and Surgery of the Navy is

[1] See Hammond's Military Hygiene, Phila. 1863.

grouped in the Government building proper, and exhibits the outfit issued to surgeons in the Navy, and the manner in which the sick and wounded are cared for. Here are also to be found two models of hospital ships. One is of the "Idaho," which was converted to its present use, and is now stationed at Yokohama, Japan; the other is of the fore-part of the U. S. S. Hartford, and the sick bay therein. These models are in sections, and the interior arrangements are admirably displayed. I. M. H.

ART. XLVII.—*Forty-sixth Annual Report of the Inspectors of the State Penitentiary for the Eastern District of Pennsylvania*, for the year 1875. 8vo. pp. 192. Philadelphia.

THIS document is a valuable contribution to our penalogical knowledge, and we heartily commend it to the attention of all who are interested in this subject. The points particularly noticed are regarded under the light of the most advanced ideas, with none of that dogmatism once so common in productions of this kind. The Inspectors discuss the matter of education, or, more strictly speaking, the ability to read and write, in relation to crime, and express renewed confidence in the superiority of the separate system, or, as they prefer to call it, *The Individual Treatment System*, over every other system of penitentiary discipline. It would hardly be within our province to examine their views, but there is one point on which we should have liked some further information. While deploring the evils arising from the open association of the convicts in their work, and insisting on the necessity of classification, they declare, with a remarkable disregard of the true meaning of the term, that the best classification is that which keeps every one alone, remote from the visible presence of his other criminal companions. Now, as a matter of necessity, they have been obliged to abandon this kind of seclusion to a considerable extent, and place two prisoners together in one room; and we are told that much of the work of the establishment is done by the convicts, of course, working together. We should suppose some positive results might have been observed as to the effect of this kind of association on the convicts. The time during which it has been practised would seem to have been long enough for the purpose, but not one word do we get on the subject. If association is so detrimental as the Inspectors represent, we cannot help asking why it is practised in doing the domestic work of the establishment, for we fail to see a necessity for it there, more than in any other kind of labor. For anything that appears to the contrary, we have a right to infer that it has been found, in a certain class of cases, to be beneficial to the institution, and not harmful to the convicts.

Dr. White, the physician of the prison, treats at some length, in his report, of certain traits in the medical character of the convicts, in a manner evincing much research and careful observation. He has profited by the light which has been shed on the philosophy of crime, if we may so call it, during the last dozen or fifteen years, and thus furnishes an earnest of future additional knowledge to this important subject. We willingly admit the requirement which he lays down as indispensable to any successful progress in this direction. "It is just as impossible," he says, "to thoroughly understand and appreciate the character and peculiarities, the physiology and pathology of the criminal mind without immediate and frequent personal observation of its workings and tendencies, as it is to acquire a rational and satisfactory knowledge of any bodily ailment without having seen a case of the disease." It is not a great while since, that the

criminal was universally regarded as the victim of adverse circumstances, as good in the main as other men, but unfortunately led astray by temptation or vicious associates. At length, the careful study of the criminal classes, indicated in the above statement, has forced upon many of those engaged in it, the conviction that as a result of organic conditions, the greater portion of these people are born with a propensity to criminal indulgences, always more or less independent of outward circumstance. This condition has received the name of criminal neurosis, and Dr. White distinctly recognizes its existence. It is manifested by the absence of remorse, as well as by the absence of repugnance to crime, and an inability to distinguish very nicely between virtue and vice, amounting often to a complete destitution of a moral sense. The physiological history of these people, embracing, of course, their ancestral relations, forces upon us the conclusion that it is, in fact, cerebral vitiation, in which the finer qualities of the brain considered as a material organ—those qualities that are essential to the higher degrees of moral and intellectual excellence—are lost. A wretched ancestry in which, for successive generations, the effect of insanity, habitual drunkenness, filthy habitations, and squalid surroundings, has been accumulating, is sufficient to account for this sort of degeneration. The statistics collected recently by prison physicians, especially Dr. J. Bruce Thompson and Dr. Mitchell of Scotland, strongly prove this point. A casual manifestation of this condition, consisting in a violent maniacal outbreak lasting several days, is frequent enough to have arrested the attention of all who have had much to do with convicts. It certainly is inexplicable on any other theory, psychological or pathological, though probably the mental disturbance owes its characteristic shape to the prison influences.

The moral dulness so characteristic of convicts is well illustrated in several cases given by Dr. White, who says that of the 150 cases in the prison of men convicted of murder, assault to kill, or rape, a large majority manifest this abnormal indifference. Sixteen instances are given in brief from which we select a couple.

"B. M., murderer, æt. 28; has 'destructive spells;' asked if he committed the murder, said, 'Of course I did; I wouldn't be here if I didn't do it' (laughingly); asked if it had not worried him; 'Oh yes, before my trial, but not since; I was afraid I was going to be swung,' says he prays for the 'other fellow' occasionally."

"P. H., murderer, æt. 47, serving out a ten years' sentence for wife murder; asked why he killed her, says, 'I didn't kill any one; my wife died from what I give her. I gave her a good licking, and I have never been sorry for it, and never will; she's better off where she is' (jocularly). Good prisoner, works hard, and never gives any trouble."

Dr. White believes that the practice of masturbation, so common among convicts, and made responsible for very much of the mental derangement that occurs among them, is, in fact, the effect of an "abnormal condition of the nervous system." He has observed that "confirmed onanists are rarely or never originally healthy, but are usually nervous, lymphatic, poorly nourished, and frequently of low intellectual grade, before the commencement of the habit." We have no doubt of the correctness of the etiology here given, though for a better reason than the alleged occurrence of the habit subsequent to this nervous, feeble condition, and the reason is recognized by Dr. White himself. He remarks, very justly, that while the insanity which is due to masturbation is regarded by practical writers as incurable, this is spasmodic or paroxysmal, and very curable. He might have added that there is a remarkable uniformity in the character of the mental disease arising from masturbation, whereby it is readily discerned by the practised observer. Had the descriptions of this form

of disease as given by Bell, Brigham, and other writers, been more carefully considered, we doubt if the mistake in question would have been so often made, not only by prison physicians, but by those in common practice. It was very common at one time, if it is not now, to look for the cause of insanity occurring in young persons, in masturbation, little or no reference being made to the form of the disease. And the mistake is sure to be made, if the patient confesses his guilt and regards it as the source of his troubles. In this case the actual succession of events is readily discerned when once the physician is governed by the real facts, rather than by the fancies of the patient. Some minor ailment proving obstinate, the young man is led at last, accidentally perhaps, to attribute it to the habit which he knows he has practised. He finds that it is regarded as detrimental to the health, both bodily and mental. He becomes alarmed, thinks of nothing else, reads books on the subject, and consults all sorts of doctors, whose advice is more likely to strengthen his fears than to furnish relief. And thus the case goes on from month to month and year to year, the mind and body steadily sinking until he becomes obviously and hopelessly insane. The case is duly chronicled as one of insanity from masturbation, though he had practised that vice not more, probably, than most young men do. We are inclined to think that Dr. White errs in the opposite direction, when he states that the vice is not more common in prisons, leaving out the exceptional cases, than it is in the outside world. We believe that convicts, as well as the insane, when confined, masturbate for lack of something else to do. It relieves the monotony of their existence by furnishing them with the only sensation in their power. The tables given in this connection are instructive; for they strikingly exemplify the intimate relations of masturbation, mental ailments, and ancestral vices and diseases to one another, and they indicate the course that future inquiry must take, in order to throw fresh light on the dark places of crime and penitentiary discipline. I. R.

Art. XLVIII.—*Sanitary and Registration Reports.*

1. *Thirty-third Report to the Legislature of Massachusetts relating to the Registry and Return of Births, Marriages, and Deaths, in the Commonwealth. For the year ending December* 31, 1874. Prepared under the direction of the Secretary of the Commonwealth, by F. W. Draper, M.D., etc. 8vo. pp. 80, clxii. Boston, 1876.
2. *First Annual Report of the Board of Health of the State of Georgia.* 8vo. pp. 215. Atlanta, Ga., 1876.
3. *Second Annual Report of the City Physician and Register of Vital Statistics of Knoxville, Tenn., for* 1875. pp. 18.
4. *The Sanitary Condition of Boston.* 8vo. pp. 199. Boston, 1875.
5. *Third Biennial Report of the State Board of Health of California.* For 1874 and 1875. 8vo. pp. 242. Sacramento, 1875.
6. *Third Annual Report of the Secretary of the State Board of Health of the State of Michigan.* 8vo. pp. xlvi., 170. Lansing, 1876.
7. *Rhode Island. Twenty-second Registration Report, year ending December* 31, 1874. Prepared under the direction of Edward T. Caswell, M.D. pp. 104. Providence, 1875.

1. In this *Massachusetts Report*, addressed to the Legislature of Massachusetts, we find the statistics, with appropriate comments and generalizations, such

as frequently form a part, and often nearly the whole, of the reports of Health Boards. The separate publication of statistics and their interpretation on the one hand, and sanitary essays and investigations on the other, seems to us the wiser plan. Dr. Draper, who has compiled and edited the present work, has long been connected with the statistical and the sanitary work of the city of Boston, and of the State of Massachusetts. We are extremely glad to see that he has received an appointment as Lecturer on Hygiene in Harvard University.

From one of the tables of births we notice that, as in Philadelphia, considerably more than half the infants are born in the latter half of the year. This agrees, we believe, with observations in France, though opposed to English statistics. It does not seem to depend, in Massachusetts, upon any favourite time for marrying.

The mortality tables show a decided excess in the death-rate of male infants over female infants. Of all male decedents, more than one-quarter were less than a year old; while of female deaths, little over one-fifth occurred in that period.

Sixteen deaths are reported of persons over one hundred years old, two being set down at one hundred and eight. Twelve of these decedents were Irish. The trustworthiness of the statements is not indicated.

2. At the date of presentation of the *Report* of the *Georgia Health Board*, it had been in existence only four or five months. Nine regular physicians, ten years in practice, are appointed by the Governor of the State—one from each congressional district. These, together with the Comptroller General, Attorney General, and the State Geologist, constitute the Board. This body chooses one of its number as President, and appoints a Secretary from without. The latter officer is a physician, and receives a small salary. Three of the nine members go out of office at successive intervals of two years. Their successors will hold office six years.

The general sanitary concerns of the State, especial supervision of the seaports through which epidemics might enter, and the careful superintendence of the registration of births, deaths, and marriages, are entrusted to the Board. Among the standing committees through which the work of the Board is to be done, we notice one upon "Endemic, Epidemic, and Contagious Diseases;" one on "Hygiene of Schools, Prisons, and Public Institutions;" one upon "Geology and Topography;" and another upon "Poisons and Special Sources of Danger to Life and Health." An address to the medical profession of the State exhibits a very creditable appreciation of the importance and variety of the functions to be discharged.

The immense loss to the community which comes from the extreme prevalence of malarial disease is fully realized by the Board. Measures which shall banish or largely control this waste of life and money will be earnestly sought. The influences which affect especially the health and longevity of the coloured population will also receive careful investigation.

The Secretary, Dr. Taliaferro, has prepared a good practical report upon the "Organization and Duties of Local Boards of Health." We believe the Georgia Board will have no reason to regret their choice of this officer.

Dr. Henry F. Campbell presents an historical sketch of the various movements, at home and abroad, looking towards perfect registration, and the conservation of the public health. The aims, the methods, and the attainments, of the laws and organizations thus far created, are stated briefly.

Dr. Nottingham contributes an excellent statement of the most advanced views of school hygiene. Dr. Stanford expresses equally just ideas in a more

summary form. We are glad here to welcome another evidence of the remarkable interest, very recently manifested over the whole country, in the conditions which affect the health and development of school children. Dr. Nottingham is evidently in full sympathy with the views so ably stated by Dr. E. H. Clarke in his famous book upon "Sex in Education."

Dr. B. M. Cromwell reports upon the "Influence of Trees on Health." He closes with a strong recommendation of the culture of the Eucalyptus. We earnestly hope that extensive experiments may be made with this tree in our Southern States. Unless the marvellous rapidity of its growth and the great value of its timber have been grossly exaggerated, it should richly reward cultivation, independently of any specific virtues.

Reports upon epidemic and contagious diseases, the prevention of smallpox, the sale of poisons, and the condition of prisons, are all worthy of commendation.

Taken for all in all, this publication indicates a very creditable beginning. The spirit of the organization seems to be zealous and intelligent. The papers here printed are generally good in matter and form. A little more careful supervision of the printing would, however, have prevented the appearance of such exasperating misprints as "repay" for "essay," "several" for "sexual," "Jenne" for "Jenner," "Agel" for "Azel," "Bradie" for "Brodie," and several others.

3. This report, made to the municipal government of *Knoxville*, is eminently practical and sensible. Dr. Tadlock is thoroughly in earnest, and apparently a useful man in his place. With little heed to the graces of style he deals briefly with the work that has been done, and that which remains to do. It is very creditable to this small city of perhaps 12,000 or 15,000 inhabitants to have recognized, and striven to perform, its duty in this direction.

Dr. Tadlock comments on the excessive death-rate of the coloured population, as due to unfavourable sanitary and hygienic surroundings. It is 33.12 per thousand living, as compared to 16.45 among the whites. The total rate is 20.23.

The writer may well be proud of having effectually stopped the use of dangerous lighting-oils. At his recommendation a close system of inspection was established, with the result above noted.

4. Owing to a widespread conviction that the death-rate was larger than it should be, the *Municipal Health Board of Boston* were requested by the mayor to investigate the subject. To this end, that body appointed a committee of five most intelligent physicians, one only being of its own number. Their report is extremely able and elaborate. It sets forth, first, the extreme difficulty of the proper use and interpretation of vital statistics. The vast influx of foreign immigrants of all ages, adds greatly to that difficulty in this country.

The rather alarming rise in the Boston death-rate in 1872 and 1873 was directly due to smallpox and two or three other epidemics. The mortality of the entire State was much increased at the same time. In 1874, however, the city death-rate fell below its accustomed average, or, making corrections for change of boundaries, nearly to it. Meanwhile registration has been growing yearly more perfect. As compared to the mean death-rate of Philadelphia from 1861 to 1873 it is only 1.6 greater, or 24.5 to 22.9. Many British cities of its size have a much worse showing; and nearly all of the continental cities show a mortality in excess.

One great agency in rendering the rate larger than it is in some other places

is the very large Irish population. The proportion of this foreign-born class is 22.71 per cent. against 11.37 in Philadelphia. British life-tables show that at 21 years, Irish "expectation of life" is lower by about six years than the English; and the latter is no higher, to say the least, than is assigned to Americans of the Eastern and Middle States. The U. S. census shows that while the Irish constitute 33.3 per cent. of our foreign population, they contribute 41 per cent. of the mortality of that population. Instead of one-third, they furnish of foreign decedents by consumption 47.8 per cent., diarrhœal diseases 38.4, pneumonia 41.3, and bronchitis 53.4. It is unquestionable that children born here, of foreign parents, partake of the constitutional tendencies of their progenitors, and are natives only in name. The Boston registration, therefore, records its deaths according to parentage. Now, it appears, that in 1870, for instance, the population of foreign parentage, amounting to 58.4 per cent. of all, contributed 70.9 per cent. of the deaths. The proportion of deaths under one year old, per hundred births, is, for native parentage 17.9, and for foreign 19.8.

The fact last stated has peculiar importance when we learn that it is specially among its infant population that the mortality of Boston is unduly high. The death-rate of children under five, per thousand living at that age, is 96.2, against 62.6 for the U. S., 68.6 for England, 82.27 for London, 136.21 for Liverpool, and 46.5 for the county of Surrey. The latter is given as an example of low, rural mortality. Under one year, the Boston mortality is, relatively, still worse, —or almost as bad as in Liverpool. On the other hand, the death-rate over five years is less than in London, and not greater than in England. To show the effect of infant mortality, it is found that the London rate for children under five would have lowered the total Boston death-rate for 1855 from 25.4 to 22.7.

It appears, moreover, that the proportion borne by infant mortality to the total has gone on pretty steadily increasing.

In giving prominence to infantile diseases as the chief source of undue mortality, the writer does not neglect to indicate other maladies which prevail with more than general fatality. Zymotic diseases, and those of the respiratory organs, are to some extent preventible. They, therefore, come within the scope of this work so far as they are influenced by the sanitary condition of this city. Drainage, sewerage, vaccination, and a pure water-supply, are judiciously exhibited as the means for limiting or preventing much illness.

The diarrhœal diseases of infants which cause so great a proportion of the excessive mortality, seem to depend on the concurrence of great heat with density of population. Improper food, given through poverty or ignorance, is an active assistant to the other causes. The evil influence of the crowding together of the people seems to consist in the concentration of animal emanations and all kinds of filth. The classes who are most congregated are the ones who by ignorance and carelessness are the most certain to poison each other. They also are the most prone to give unfit or impure food to their children, and to administer drugs.

The methods of prevention here indicated may be summarized, as early and frequent vaccination, and the protection of person, air, food, and water from filth of all kinds. Sewage must be completely and rapidly removed, before putrefaction takes place. The accomplishment of this object is a very difficult task, into the details of which the report does not enter. A jealous watchfulness over the purity of the water-supply, and a rigid enforcement of the laws concerning milk, are here urged.

5. This *California Report* seems to us to be upon the whole a very creditable and valuable one. Several of its papers were prepared for other occasions, it is true; but as the object of the publication is the awakening and informing of the public mind, the Board is worthy rather of praise than blame for adopting such portions of the work of others as seem to be peculiarly suited to its purpose. The general tone and spirit of the book is earnest and enlightened.

Considerable attention is given to one of the great and pressing problems of the age, the relations and duties existing between society and the inebriate. Here and elsewhere appears a growing disposition to assert and exercise the right and even the obligation of the community to deprive the drunkard of that liberty which he abuses. This feeling, too, exists both among those who regard him as the victim of disease and those who hold him to be vicious.

Several papers relative to climatology and disease are presented, with valuable meteorological tables and maps. In the more important of these the secretary, Dr. Thos. M. Logan, whose recent death we have to regret, treats of consumption and of malarial fever in their relations, not to natural climate only, but also to modifications due to irrigation, destruction of forests, drainage, cultivation, etc. Miasmatic diseases, it seems, have very greatly increased in California. The changing of water-courses, resulting from mining operations; the alternation between overflowing freshets and drying banks and stagnant pools, caused or aggravated by destruction of trees upon the mountain sides; and the growing use of irrigation, are mentioned as probable causes. Without irrigation immense tracts of land would be valueless for agriculture. We are not quite able to discover whether the writer believes that the necessary irrigation could, or could not, be so arranged as to produce crops of wheat without crops of fever. He does, however, strongly advocate the planting of trees, not only on the mountains but in the fertile valleys. One tree in particular, Dr. Logan believes especially adapted to directly diminish the prevalence of malarious disease. The Eucalyptus Globulus, by its wonderfully rapid growth, its enormous absorbing surface of roots, and possibly, also, by some specific virtue in the balsamic and fragrant emanations from its leaves, is thought to possess extraordinary power in the prevention or destruction of miasma. It is said to thrive admirably in California, and to produce timber of great value.

Dr. W. P. Gibbons doubts the specific virtues of the tree, but does not doubt its peculiar usefulness due to its enormous absorbent capacity. He points out with great clearness the good effects which forest culture may be expected to produce.

Some space is given to a consideration of "earth-closets" and "pail-closets." We think there can be no possible doubt that appliances of this sort ought to be provided in all prisons and many other places, at once.

From the *Sanitary Record*, of London, is copied an account of Capt. Liernur's pneumatic, or vacuum, system of removing excreta. Steam engines working air-pumps, create a vacuum (approximate) throughout a network of underground tanks and iron pipes. Then a stopcock on each street-main is opened, and the contents of each house receptacle instantaneously sucked into the main. A regular series of such movements daily passes all excreta into a vacuum chamber, where the waste steam of the engine affords heat enough to transform them into poudrette. Improved water-closets or air-closets are also a part of this plan. The details are too complicated for present explanation; the system is said by some to work with absolute perfection, and to pay its own expenses, or even return a profit; while others report unfavourably of it. It has worked to admiration as applied to a few streets in certain European cities. The sanitary gain to be expected from wholly excluding fecal matter from the

common sewers, and thus from the air and water, needs only to be mentioned to be appreciated.

An account of the sewerage systems of London and Paris, drawn up by one of the engineers of the London Board of Works, was obtained and given for publication by a member of the California Health Board. It is illustrated by maps and diagrams, and may give many useful hints to American planners and builders of sewers.

6. Again we take pleasure in welcoming an admirable volume from the *Michigan Board of Health*. The entire cost of the organization to the State for the past year has been less than $4000. We hope that the people will duly appreciate the almost inestimable value of the intelligent services so cheaply obtained. Not only does the Board give to the public most important warning, counsel, and instruction, upon matters closely affecting life and health, but also, by a most extensive system of correspondence with local boards and with physicians throughout the State, it is amassing information as to climate, water, general sanitary influences, the prevalence of different diseases, and the movements of epidemics, which will prove of the greatest future value.

The president, Dr. Hitchcock, has prepared an excellent exposition of the need, formation, and functions of local health-boards. It would serve as a useful guide and manual for such bodies everywhere.

The indefatigable Prof. Kedzie has been investigating the agricultural use of insect poisons. All these are attended with a certain degree of danger, inseparable from their general presence and employment. The white preparations of arsenic should never be used. Paris green is at least of equal efficacy, and not, like the others, liable to be the cause of terrible mistakes. Careful observations and experiments have convinced Dr. Kedzie that this agent, as employed to destroy insects, does no harm to the plants, nor to the quality of the foods which they afford, nor to the purity of water derived from the soil. Any fears, therefore, that potatoes or wheat, protected from insects by this poison, might be made unwholesome, are wholly groundless.

A paper on Trichinæ adds some original cases to the literature of that subject.

Rev. Chas. H. Brigham, of the committee on occupations, contributes a thoughtful and brilliant paper upon the Influence of Occupations upon Health.

Another contribution from Dr. Hitchcock, deals with the dangerous errors commonly observed in the methods of disposing of excreta. Illustrative cases are given, both old and new, together with practical hints and directions for the avoidance of danger.

The practical working of a new law, providing for a State Inspection of Illuminating Oils, is described by Inspector A. A. Day. We believe this enactment, perhaps amended as here suggested, is capable under faithful execution of saving an enormous amount of property and very many lives.

Dr. Arthur Hazlewood has been sending to the numerous correspondents of the Board circular letters of inquiry as to the character of the water drunk in their vicinities. The questions are exceedingly minute, embracing some three dozen particulars; and the answers convey much instruction.

An article upon Ozone, by Prof. Kedzie, does not so much assume to publish new discoveries, as to state the facts already ascertained, and the theories current, and to indicate the probable value of further investigations. Nevertheless, the writer gives us, very modestly, some results of his own experiments, and some opinions which he has formed. His suggestions and surmises are well adapted to direct attention to the as yet unascertained influence of ozone upon health and disease.

Dr. Henry F. Lyster illustrates the sanitary influence of drainage in cities, by reference to the history of health and disease in Detroit.

7. The Registration system of *Rhode Island* has long been regarded as one of the most perfect in the country. The small size of the State and the density of its population have undoubtedly much influence in producing this high degree of perfection. We believe, however, that much credit is due to the wise arrangement by which the conduct of the work is assigned to a committee of the State Medical Society. This committee changes but little from year to year, and is always composed of men known to possess liking and ability for researches in vital statistics.

Dr. Caswell directs attention to the fact that these statistics do not show that closeness of connection between deaths by cholera infantum, and elevation of temperature, which has been believed to exist in New York and elsewhere. Indeed, a table showing these facts for the hot months of nine successive years exhibits several very striking contradictions to the supposed rule.

The unusually cold April—coldest in forty-three years—was signalized by almost double the usual mortality from pneumonia.

Deaths by scarlatina were largely in excess of any previous year, reaching 10.9 per cent. of total mortality. Of 462, 312 occurred in the first half of the year. The most fatal months were June, 63, and January, 57; the least fatal, September, 18.

Dr. Caswell remarks that the relations of mortality and temperature are yet far from being fully ascertained.

Looking at the records of past years, a very gratifying and pretty regular diminution is apparent in the proportion of deaths due to consumption. The same tendency would seem to obtain in the case of typhoid fever.

Births were absolutely more numerous than ever before; relatively to population, less than the three years previous. These were in the proportion of 104.9 male to 100 female infants. This ratio of sexes has varied very singularly and greatly in different years, once leaping in succeeding years from 100.3 up to 112.9, again from 100.9 up to 108.6, and from 102.3 up to 110.5, with almost equally abrupt changes in the other direction.

Marriages were less numerous than in 1873. The proportion of those wholly American, as compared to foreign and mixed, decidedly diminished, while the percentage of the two latter increased.

Divorces seem to be increasing. They amounted in 1874 nearly to one-tenth the number of marriages.

It is a curious fact that, among the coloured population, births, during the last fifteen years, have been gaining upon, equalling, and of late surpassing, the deaths. In other words, a natural increase now occurs where was formerly a tendency to extinction. B. L. R.

ART. XLIX.—*The Cause of the Commencement of Parturition.* By CHARLES M. CROMBIE, M.B., M.C., Author of *Remarks on Midwifery to Midwives, etc.*, Fellow of Obstetrical Society of London, etc. 8vo. pp. 38. London: J. & A. Churchill, 1875.

PASSING over a large portion of the preliminary matter, we come down to the subject proper of the essay, *i. e.*, the determining cause. Dr. C. believes, as has been taught by Dr. Braxton Hicks, that the uterus is active during the

whole pregnant state; and that it is also ready at any time to perform its muscular office of expelling its contents, as shown by its intermittent action; by the possibility of abortion at any period, either spontaneously or designedly; and by the continuance of expulsive contractions after the delivery of the fœtus, until the placenta and every clot of blood are expelled.

What prevents this activity of the uterus culminating in the expulsion of its contents before the termination of pregnancy, is believed by the author to lie in the antagonistic hydrostatic power of the liquor amnii. The final termination of this antagonism he attributes to a gradual absorption of this fluid, its diminishing volume in proportion to the size of the fœtus, allowing the latter to be more directly acted upon by muscular contractility; and, last of all, the disintegrating process, which ultimately separates the placenta from the uterus. Dr. Crombie believes that the existence of the fœtus *in utero* is a struggle maintained by the antagonism of opposite forces.

We are not prepared to accept this explanation in the measure in which it is offered to us, as we can hardly reconcile its teachings with the results of treatment, in postponing an active labour of ten hours, accompanied by a decided hemorrhage, at four and a half months, until the termination of the full period of gestation; or at the period of eight months, with the same result. The power of expulsion exists certainly in the uterus from a very early period of gestation; but this force is clearly on the increase as pregnancy advances; and is most active at the full development of the organ. Opium, in some instances, appears to possess the power of arresting premature uterine action, so that it ceases for the time, and may not be renewed until the normal period of parturition. We are of the opinion that the cause of uterine expulsive action lies in the nervous system, and is one of the mysteries connected with our organization which is beyond our mental comprehension. Our voluntary muscles have a certain power under the will, but how much greater is the contraction when influenced by the causes which produce the spasms of tetanus or epilepsy. We have seen "the intermittent action" of the uterus decidedly painful and threatening for several weeks together, but the woman did not abort. Why? Because the exciting cause in the nervous system, whatever it may have been, was less than that which determines the *full* force of the uterine contractions. We have seen a woman in labour on two consecutive nights, and delivered on the third, in whom the labour-pains ceased on the two intervening days. We cannot readily explain this upon the hypothesis of Dr. Crombie.

R. P. H.

ART. L.—*The Student's Guide to the Practice of Midwifery.* By LLOYD ROBERTS, M.D., M.R.C.P. London; Physician to St. Mary's Hospital, Manchester; and late Vice-President of the Obstetrical Society of London, etc. 12mo. pp. 317. Philadelphia: Lindsay & Blakiston, 1876.

DR. ROBERTS dedicates his little manual to the venerable Dr. Thomas Radford, honourable consulting physician of St. Mary's, and celebrated as one of the few successful performers of the Cæsarean operation in Great Britain, and author of a work upon the statistics of this operation in his own country.

The volume as presented by the American publishers is in good type, and generally well illustrated, many of the wood-cuts having an old familiar face, being carefully selected from more comprehensive works. We are glad to see also the compliment paid to Prof. Dalton of New York, in the use of his illus-

trations in explanation of the development of the ovum, and circulation of the placenta. We are not partial to manuals, it must be confessed, and particularly upon obstetrics, as the whole subject may be presented in its full completeness, if disconnected from its cognate branches, viz.: the diseases of women and children, in one large octavo volume. As an elementary work for students or midwives it may, in some respects, be of advantage, or may serve as a book of ready reference to a country practitioner in his round of business; but we prefer a more comprehensive presentation of the subjects treated.

Dr. Roberts, having twice operated by the Cæsarean section, devotes seven pages to the subject, which he denominates "the forlorn hope of the obstetric art." His reflections upon the unfortunate results in his own country are worthy of notice; which he computes as but 15 per cent. of women saved, to 57 per cent. upon the continent, and attributes it to the longer delay practised in Great Britain.

We quote a few of his remarks as worthy of special notice:—

"In order that Cæsarean section may not prove a forlorn hope, it should not be deferred until, as too often happens, the patient's powers are reduced to the lowest ebb. It is greatly to be feared that in many cases the operation has been performed as a sort of obstetric absolution in deference to the rule that a woman in travail should not be allowed to die undelivered." (page 244.)

"Our enlarged experience in abdominal surgery derived of late years from the frequent successful performance of ovariotomy, cannot fail to aid us in the treatment of Cæsarean section, and tends to encourage the hope that the future percentage of deaths will place Cæsarean section in a far more favourable position than it at present occupies." (page 246.)

"The maternal mortality appears to be greater in cases of osteomalacia than in rickets." (page 247.)

This may be, as relates to the whole statistical table, but Winckel, who has operated much oftener than any continental authority, and saved a much larger proportion of women, has been led to this frequency, by living in a district where osteomalacia is unusually common. In America, almost all deformed pelves are due to rickets, and malacosteon is scarcely ever met with. Promptness of action has been the main cause of our advantage in comparison with Great Britain.

As an obstetrical manual where such is desired, we think that of Dr. Roberts one of the best now offered to the profession, as it comes with authority, and he possesses the ability to condense, and at the same time present a subject clearly.

R. P. H.

ART. LI.—*On Stethometry. Being an account of a new and more exact Method of Measuring and Examining the Chest, with some of its Results in Physiology and Practical Medicine. Also an Appendix on the Chemical and Microscopical Examination of Respired Air.* By ARTHUR RANSOME, M.D., M.A. (Cantab.), Examiner in Anatomy and Physiology and Pharmacology in the University of Cambridge. With illustrations. 8vo. pp. xii., 207. London: MacMillan & Co., 1876.

THIS treatise contains descriptions of several new instruments which were devised, the author tells us, in his preface (1) to mark the situation of various thoracic phenomena; (2) to investigate more thoroughly than has hitherto been possible the complicated mechanism of respiration. He admits that of these instruments, four are not likely to come into general use, but believes that the

remaining two, the chest-rule and the 3-plane stethometer, or some modification of them, are means of accurate measurement that will be found useful in the every-day study of disease. The last named of these instruments was described in a paper which appeared in the *Transactions of the Medico-Chirurgical Society* for 1873, which was noticed in the number of this Journal for October, 1874. He claims that it is of great service in the diagnosis, prognosis, and treatment of phthisis and other diseases of the chest, and supports his assertion by reference to numerous cases in which he has used it.

The other instrument, the chest-rule, is designed to facilitate the taking of notes, and "consists of thin narrow spring steel, so arranged as to form a rectangular parallelogram, 6 inches long by 3 inches wide, and divided into eighteen squares of exactly 1 inch length of side." It is so light and flexible that it may be carried in a case-book and readily applied to the chest. By its aid we may mark upon a diagram figure, the exact position upon the surface of the chest, at which, for instance, auscultation has enabled us to detect the signs of a cavity.

We will not deny that these instruments may be of service to us in the study of disease, or that they may be useful to the lecturer as means to demonstrate to his class the existence and situation of disease, but we do not see any good reason for believing that they will ever come into general use. The greater the skill a physician possesses in physical diagnosis, the less we are inclined to think will he be disposed to have recourse to them. In a case of phthisis in which the author says "no trace of thoracic mischief could be discovered by myself or by an eminent Manchester physician," the fact that the patient had lost a brother with the disease, would it seems to us, have awakened the suspicions of a careful observer, even if the general symptoms had been less unmistakable than they appear to have been.

The book, which is evidently the fruit of much labour, is illustrated with numerous diagrams and tables. J. H. H.

ART. LII.—*A Text-book of Electricity in Medicine and Surgery, for the use of Students and Practitioners.* By GEORGE VIVIAN POORE, M.D. Lond., M.R.C.P., etc. 8vo. pp. 291. London: Smith, Elder & Co., 1876.

THIS is decidedly the best work on electricity, for the purposes of the general practitioner, that we have yet met with. It not only goes fully into the practical uses of this important therapeutic agent, but treats at sufficient length of electro-physics. The books on this subject which we have heretofore seen, either have been devoted too exclusively to the scientific study of electro-physics, or have treated of the therapeutic uses of electricity without regarding its theoretical considerations.

The book opens with a chapter on "*principles*," in which the author places before his readers all that it is necessary for them as practitioners to know of this part of the subject. Very properly he begins with details which are elementary, but without which no one can ever expect to gain a knowledge of electricity. Comparatively few physicians are conversant with these first principles, for electricity is one of those studies which is seldom included in a course of medical lectures, and text-books on medical electricity, as a rule, take it for granted that their readers are familiar with the elementary part of the subject.

It is really refreshing to find here everything made so clear and simple.

Ohm's law is explained so that it is as easy as a, b, c, and the terms "quantity," "intensity," "density," and "tension," which are invariable stumbling-blocks, are rendered so plain that the reader cannot help understanding them.

The subject of induction and the principle of the faradic machine, which are often difficult of comprehension, are made very clear by the use of diagrams taken from M. Tripier's *Manuel d'Electrotherapie*.

Chapter II. concerns batteries, and the author describes and recommends those instruments which he has personally found best. They are often apparatus with which in this country we are unfamiliar, but the principle on which they act is the same as that of all other batteries. The form of cell recommended for the galvanic current is the Leclanché element, and from our own experience with it we are prepared to endorse the high praise which Dr. Poore gives to it. On page 9 there is a cut of one of these cells, which differs from any that we have seen in this country, but it must be much more convenient for medical uses than those found here. Its capacity is that of a two-ounce vial, and the entire top is sealed with openings for the elements, etc. to pass through, so that the evaporation of the fluid must be very slight, and there can be no running over of the solution on the outside of the glass. Our readers are no doubt aware that the Leclanché element consists of zinc and carbon in a solution of chloride of ammonium. The carbon is packed in a porous cell with peroxide of manganese.

Twenty or thirty pages are devoted to the physiology of electricity, and an interesting account is given of the author's experiments on the effect of the galvanic current on muscular power. The author is of the opinion that the sympathetic in the human subject may be acted upon by the constant current, but as it cannot be isolated from the adjacent nerves in the neck, we are ignorant of the effects of galvanism on the sympathetic, and remarks that "beyond occasional dilatation of the pupil he has never seen any indication of the nerve responding to the stimulus." He states positively his belief that the brain may be influenced by the galvanic current.

This has always been a mooted question, and we observed that a recent reviewer of Bauduy's "Lectures on Diseases of the Nervous System," in the *New York Medical Journal*, remarks with much satisfaction that "the reader will be spared frequent allusions to galvanization of the brain, and other absurdities now exploded."

In the chapter on the "Method of using Electricity," Dr. Poore gives the most satisfactory and detailed account of how to use galvanism and faradism. He recommends Kidder's reophore because the sponge, which is attached at the base to a metallic disk, is in the shape of a cone, and if it be applied gently to the surface, the point forms a small electrode, but if pressed down firmly it becomes flattened out into a large one. Our own experience is that in using a sponge electrode, unless it be pressed firmly on the surface so as to bring it in close contact with the metallic base, it requires a very strong current to be felt, and then by varying the amount of pressure, as one is apt to do, inadvertently, you give the patient an unnecessary amount of pain.

In speaking of the diagnostic uses of electricity, the author advises that, when we wish to test the relative electrical condition of a nerve or muscle on different sides of a patient, we should place one electrode on the median line of the body. For example, in comparing the electrical condition of the arms he attaches one reophore to the nape of the neck, and the other he applies to the muscles of each arm. Dr. Poore does not seem to be acquainted with the very convenient stationary electrodes in use in this country. They consist of a plate of metal covered by a large sponge on one side, and on the other side is a piece of India rubber, larger than the sponge, which prevents the wetting of the

patient's clothing. This electrode can be placed at the back of the neck, or on any part of the spine, or over the sciatic nerve.

We are glad to see that electrical baths are pronounced useless.

The author describes a method of using galvanism which is peculiar to himself. It consists in "the combination of a continuous galvanic current with voluntary muscular exercise." We believe this was first described by him in the *Practitioner* in 1873, and is chiefly used by him in the treatment of writer's cramp.

A large amount of space is given to the consideration of writer's cramp, and, as the author is well known for his researches in this disorder, we are glad to have the opportunity of learning fully his method of treating it.

A large number of cases are given to illustrate the uses of electricity, and are valuable because they are not only the author's own cases, but are those of other well-known writers.

A portion of the work is given to the surgical uses of electricity, including electrolysis, the treatment of internal aneurisms, and galvano-cautery.

The book is written in an agreeable and easy style, and is as condensed as the subject will permit of. One great advantage about it is that all of the best authorities on electricity are fully quoted, and the cream of their researches is given to the reader.

We congratulate the author on his success in accomplishing his object, which he modestly says in the preface has been "to produce a book which will be of use to students and practitioners," and from its handy size and good print, to say nothing of its intrinsic merit, we are sure it will prove very popular.

W. S.

ART. LIII. — *History of the Association of Medical Superintendents of American Institutions for the Insane, from* 1844 *to* 1874, *inclusive.* Compiled from the records of the Association by JOHN CURWEN, M.D., Secretary of the Association. 8vo. pp. 121. 1875.

THIS very neat little volume is a complete register and directory to American Hospitals for the Insane, and their officers, past and present. Opening with the briefest possible sketch of the origin of the Association, Dr. Curwen gives an account of the organization and first meeting, Oct. 16, 1844, at Jones's Hotel, Philadelphia. The late Dr. Samuel B. Woodward, of the Mass. State Hospital at Worcester, was chosen President, Dr. Samuel White, of the Hudson Asylum, N. Y., Vice-President, and Dr. Thomas S. Kirkbride, Secretary and Treasurer. Some dozen or fifteen members formed the original body. Committees were appointed, reports and discussions listened to, and business transacted. The next meeting was held in May, 1846, since which time the sessions have been held nearly every spring. The place and date of each meeting, with names of members present, changes of officers, appointment of committees, resignations or deaths of members, and the more important expressions of opinion by the Association, are all reported in a condensed form. Obituary notices of deceased members are inserted in connection with the last meeting at which they were present.

A list of past officers with dates of service, and one of American hospitals for the insane, with the names and period of service of their superintendents from their opening, add much to the value of this work as a book of reference.

It would be difficult to overrate the influence of this Association in elevating the character of our insane hospitals. Every idea or suggestion looking towards improvement has been thoroughly canvassed in its annual meetings. The young or inexperienced or less qualified superintendent has had the opportunity of listening to men who had spent the best part of their working lives in caring for the insane. The sessions, too, being always held in close proximity to some institution for the treatment of mental disease, afforded visitors the means of noting and comparing methods and arrangements. And as nearly every hospital was, or expected some time to be, visited by the Association, there was a constant incentive to improvement. The peculiarly isolated and secluded life of the hospital superintendent, as compared to the general practitioner, renders some such break in the monotonous round of his duties almost as needful for his mental and physical health as it is helpful to his specialistic training.

B. L. R.

ART. LIV.—*A Manual of Minor Surgery and Bandaging.* By CHRISTOPHER HEATH, F.R.C.S., Surgeon to University College Hospital, and Holme Professor of Clinical Surgery in University College, London; Honorary Fellow of King's College. Fifth edition. 12mo., pp. 308. Philadelphia: Lindsay & Blakiston, 1875.

THE fact that this work has gone to a fifth edition in its own land, and has been reprinted in this country, may be considered a sufficient proof that it has met the needs of those for whose use it was designed, and renders any extended criticism upon it at this late date superfluous. We have taken the trouble to compare a considerable portion of the volume with the corresponding portion of the fourth edition, and find that the additions and alterations, though by no means numerous, are generally judicious and valuable. American surgeons, indeed, will be surprised to find that, in the chapter on dislocations, there is no reference to Dr. Bigelow's investigations, and, in fact, no mention whatever of the method of reduction by manipulation in the account of either shoulder-joint or hip-joint luxation. If it is actually the case that the majority of British surgeons know no better way of treating dislocations of the hip than by making simple extension and counter-extension, we must consider them ignorant of one of the most brilliant achievements of modern surgery; but we prefer to think that his fellows' practice is better than Mr. Heath's teaching, and that his chapter on dislocations has been overlooked in the revision of his volume.

This opinion is strengthened by the observation of other marks of haste in revision, though, as five years have intervened since the appearance of the previous edition, we fail to see why such haste was imperative. Thus while an account is given of Dieulafoy's method of pneumatic aspiration, yet in the section on urinary retention the house-surgeon is still, as in the fourth edition, "strongly recommended to tap the bladder through the rectum, as being at once the safest operation and the easiest to perform." We regret, by the way, to observe that in introducing an account of Dieulafoy's operation it has been thought necessary to omit the reference made in the previous edition to Dr. Bowditch's labours in the same field. As we have heretofore had occasion to point out, a considerable portion of the credit claimed for the French surgeon is justly due to his American predecessor.

This book presents a very neat appearance, and its illustrations are decidedly better than those commonly seen in works of a similar character.

J. A., JR.

ART. LV.—*Reports of Hospitals for Insane.*

1. *Pennsylvania Hospital for Insane*, 1875. pp. 70. Philadelphia, 1876.
2. *State Lunatic Hospital of Pennsylvania*, at Harrisburg. Year ending Sept. 30, 1875. pp. 49. Harrisburg, 1875.
3. *State Hospital for the Insane*, Danville, Pa. Year ending Sept. 30, 1875. pp. 48. Danville, 1875.
4. *Asylum for the Relief of Persons Deprived of the Use of their Reason.* March, 1875, to March, 1876. pp. 30. Philadelphia, 1876.
5. *Iowa Hospital for the Insane*, at Mount Pleasant. Nov. 1, 1873, to Oct. 31, 1875. pp. 52. Des Moines, 1875.
6. *Northern Hospital for the Insane*, Oshkosh, Wisconsin. Year ending Sept. 30, 1875. pp. 74. Madison, Wis., 1875.
7. *Illinois State Hospital for the Insane*, at Jacksonville. Dec. 1, 1872, to Nov. 30, 1874. pp. 48. Jacksonville, 1874.
8. *Longview Asylum*, Ohio. Nov. 1, 1875. pp. 48. Cincinnati, 1875.
9. *State Lunatic Hospital at Northampton, Mass.* Year ending Sept. 30, 1875. pp. 87. Boston, 1876.
10. *Butler Hospital for Insane.* 1875. pp. 37, Providence, R. I., 1876.
11. *Nova Scotia Hospital for Insane.* 1875. pp. 57. Halifax, N. S., 1876.

1. IN his report as superintendent of that noble corporate charity, the *Pennsylvania Hospital for the Insane*, Dr. Kirkbride expresses with much emphasis his conviction of the very great importance of frequently varied occupation, amusement, or locality, in the curative treatment of insanity. To be allowed to brood or mope in mental vacuity, or in the thrall of some morbid thought or feeling, hour after hour, he believes the worst thing possible for the patient. Accordingly he seeks to provide a constant renewal of gentle distractions, which shall break up, many times daily, the habit of diseased thought and feeling. Certainly no man in the specialty has a better right to urge this course upon others, for he has long practised most faithfully what he preaches. One of the later additions to the great variety of means thus provided, has been the introduction of ornamental wood carving, or rather sawing, in the ladies' department. The Dr. has often observed how some occupation, even not seeming especially attractive, has given the first impetus to recovery. To large numbers of patients, the wonderful labours now culminating in the Centennial Exhibition have proved sources of most wholesome interest, and will so continue for months.

The claims of the insane yet unprovided with hospital accommodation are forcibly presented. To say that great and costly buildings have been erected, and that the further provision asked for would require immense outlay, in no way alters the plain duty of the community. The mere delay in completing the hospitals at Danville and at Warren, condemns six hundred unfortunates to a year's imprisonment in jails, almshouses, and other unfit places. With many, this will imply life-long insanity instead of cure. With all, it is an injury and an injustice. The actual financial loss to the State, though less immediately apparent, is not less real. Besides the State hospitals uncompleted, for Philadelphia alone are needed two large hospitals. There are 1200 insane at Blockley, where only 600 should be. To say that the existing state of things is a disgrace to Philadelphia, is no reflection upon the officers of the present hospital, who certainly deserve great credit for well-doing under immense discouragement.

To furnish proper hospital treatment for the insane, says Dr. Kirkbride,

"money faithfully expended . . never yet made any State or city poorer." "What they have done for a part, must be done for all, and this is demanded by their whole history, by a wise economy, and the urgent claims of a common humanity."

Referring to the vulgar clamour against "palaces" for the pauper insane, the writer deprecates excessive expenditure, but adds that "the essentials are the same [for all classes], and any plan which diminishes the cost to one-half of what it should be, simply takes away just that much from its means of usefulness." This is as true as the propositions of Euclid; and any attempt to evade its logical results will only result in present disappointment, and future retribution.

Dr. Kirkbride takes occasion to present a brief but excellent Centennial Retrospect of American work for the insane. In the course of this, while rejoicing in the abolition of all cruel measures of restraint or treatment, and the reduction of all coercion to the lowest permissible degree consistent with the welfare of patients, he defends the exceptional use of mild restraint, against the fanatical attacks of certain British disciples of unreason. Home discipline and home treatment have failed, he reminds us, before the patient is sent to a hospital. Owing to that failure the other course is taken; and it is mere folly to insist upon limiting the latter wholly to the methods of the former. It is because restraint is needed, that the hospital is tried; and the restraint called mechanical may be much more merciful, and less irritating, than incessant struggling with strong-armed attendants.

2. In the report of the *Pennsylvania State Hospital*, at Harrisburg, Dr. Curwen has spoken some judicious words of warning and criticism as to the treatment of young children by parents and by teachers. In early childhood, when the young mind is extremely impressible, and before books are used, parents seem lamentably unconscious or careless of obligation. They treat a child like a toy or a pet dog—like anything but a moral and responsible being—starting upon a career to last throughout eternity. By turns caressed, teased, trifled with, indulged, and punished, children are the sport of parental whims and humours. No self-control, or self-sacrifice, or worthy regulating principle of any kind, is taught them. All too soon are they turned over to the teacher, in both day-school and Sunday-school. Of him or her it is only required, that the poor infants be kept quiet as many hours as possible, and crammed with as many "studies" as may be. All sense of responsibility is shifted from the parental shoulders; and, in sooth, it does not much burden the average teacher.

No wonder that in the popular management of children, Dr. Curwen finds a predisposing, or an exciting, cause of insanity.

3. Out of some 260 patients in the *State Hospital* at Danville, sixty are paying patients, so called. Of these, only *two* pay as much as the actual cost of support per head in the hospital. This illustrates what we have, in other numbers of this Journal, adverted to as one of the functions of State Hospitals. It is the receiving of patients whose friends are poor, but who dread the stigma of pauperism. Here are many of this class receiving the benefits of hospital treatment, at less than cost, but preserving their self-respect by payments which, for their means, are by no means light.

The partially completed building is already crowded, and there is urgent need for finishing it as originally planned.

4. The pleasantly situated *Asylum at Frankford* presents a modest record of continued usefulness. Improvements in the grounds, in several smaller buildings, and in the means of occupation and amusement, are here noted.

5. The trustees' portion of the Report of the *State Hospital at Mt. Pleasant*, Iowa, contains a brief record of a very curious experience in hospital government. Two or three years ago, Dr. Ranney, who had been the eminently successful head of the institution from its beginning, felt that certain recent legislation so impaired his usefulness that self-respect obliged him to resign. His first assistant succeeded to the superintendency. Somehow the machinery did not continue to run with its wonted smoothness, and on July 1, 1875, in consequence of urgent requests and assurances of the trustees, Dr. Ranney again accepted the superintendency, just vacated by Dr. Bassett's resignation, while the latter, for a time at least, again assumed the duties of assistant under his old chief. Nothing more honourable to all parties than this last revolution could well be conceived.

Dr. Ranney takes occasion to correct some of the more common popular misapprehensions which have attached to this and other similar institutions. He also urges the immediate relief of the house from the injurious presence of insane convicts, several of whom, he says, do much mischief to other patients, and cause the officers continual anxiety.

We are glad to learn that the obnoxious act which caused Dr. Ranney's resignation in 1873, has, by amendment and by different legal interpretation, been shorn of its worst features.

Dr. Ranney prints, and commends to the readers of his report, the preamble and resolutions adopted a year ago by the Association of Superintendents, deprecating State boards or committees with power to interfere with the management of hospitals.

The report closes with a manly expression of confidence and regard towards Dr. Bassett, with the hope that he will consent to retain indefinitely the position of first assistant.

6. Dr. Kempster's report, from *Oshkosh*, Wisconsin, is extremely interesting and instructive. He presents many curious illustrations of the hereditary transmission of the tendencies to insanity, crime, moral imbecility, and other vices of low or perverted organization.

He speaks highly of control exercised over the epileptic paroxysm, and over resulting maniacal fury, by the nitrite of amyl.

Insanity is a disease of deterioration or degeneracy. Nearly always it will be found that the recognized malady has been preceded by a period of failing vitality. This, says the writer, adds to the importance of providing proper treatment as soon as the nature of the case appears. For grave lesions have probably already affected the cerebral structure.

Some details of the structure and working of heating and ventilating apparatus are not without interest.

Here, as everywhere, we find appeals for more hospital accommodation; and, as is equally general among alienists, counsel against any attempt at "cheap" provision.

The pathological investigations with the microscope, for which Dr. Kempster has acquired an honourable fame, are regularly continued.

7. The report of the trustees and superintendent of the *Illinois Hospital*, chiefly records those improvements and replacements which are, or should be, almost incessant in such establishments.

In some remarks upon treatment, Dr. Carriel adopts the happy comparison of a former writer, who said that a proper hospital is to the diseased mind what a splint is to a broken limb. Both are designed to give rest and support, and to put the affected parts in the best position for the curative action of nature, and the assisting efforts of the physician. And especially is the analogy perfect in the respect that the succor should be immediate. For inducing a natural sleep, the Dr. finds a thirty-grain dose of chloral, given to the patient in bed, after the wards are quiet, especially effective and free from ill consequences. He would seem to imply, however, that ill effects might be feared from regular and prolonged use of this drug. The bromide of potash has appeared, in many cases, to prevent the recurrence of epileptic fits, or to diminish their frequency. Protracted use diminishes weight and strength. In some cases, nothing supplies the place of opium. Warm baths, with cold water on the head if indicated, are found to be most powerful tranquillizers. A bath and a stimulant are often enough to procure sleep. Tonics, including phosphorus, rich diet, and milk-punch, are in frequent use.

8. The *Longview Asylum* seems to be even worse crowded than most of the State hospitals—which is saying a good deal. Built for 350 patients, it is required to care for 592. There being no separate establishments for idiots or epileptics, and no place to which incurable cases can be drafted, the wards of the hospital are choked with a peculiarly hopeless class. To make the matter worse, few admissions occur in the first stages of the disease, when recovery would be probable. This unfortunate experience, we fear, is pretty equally noticed in other institutions. For the hopelessly demented and idiotic patients, Dr. Bunker urges the building of a separate house, to accommodate two or three hundred, and to be connected with the administrative department already provided. This would enable him to do greater justice to the acuter cases in the unburdened wards of the original hospital.

9. Those who have read Dr. Earle's reports need not be told that his portion of the report of the *Northampton Hospital* is suggestive and readable. Whether he deals with treatment, or asylum economy, or with the duty and policy of the State, his views are sure to command respect. Upon the management of patients, their occupations and amusements, and the duties of those who care for them, his ideas are advanced and well considered. His economic management would seem to be extremely able and successful.

Under the working of the legislation which insured writing materials to all, and placed a locked letter-box in each ward—twenty-one in all—to be opened periodically, only by a member of the Board of State Charities, three letters only, addressed or supposed to be addressed to the Board, or Lunacy Commissioners, or the Superintendent, were found by the authorized collector. These were shown to the doctor, who here prints them entire or in part. They are amusing reading, for all but the sapient law-givers who insured their preservation.

10. The chief improvements of the year, at the *Butler Hospital*, are the benefits found to result from its connection with the city water-works, giving unlimited pure water with a pressure great enough to throw streams over the highest roofs, and the completion of the new and admirable "David Duncan Ward." Dr. Sawyer's report contains a detailed description of the planning and construction of this extension, and of the advantages which it offers. Both his report and that of the trustees, speak in heartfelt words of the death of Mr. Robert

H. Ives, one of the oldest friends and managers, and one of the chief workers and givers, ever connected with the hospital.

11. We find from the report of the *Nova Scotia Hospital*, that increased provision for the insane is as much needed there as in the States. Dr. De Wolf advises the prompt commencement of two new asylums at the extremities of the Province.

Some dozen years ago a young woman was admitted with acute melancholia and suicidal mania. Her determination to kill herself was desperate and her attempts were frequent. At last, relaxed vigilance on the attendant's part gave her an opportunity to hang herself. She appeared dead when discovered, but was saved by artificial respiration after hours of anxious toil. After lying in a critical condition for forty-eight hours, with occasional convulsions, protruded tongue, and suffused face, she suddenly aroused, assumed a natural expression, and was herself again. No relapse occurred, though many years have since passed.

Another recovery is reported of a female patient after fifteen years' residence. B. L. R.

ART. LVI.—*American Association for the Care of Inebriates. Proceedings of the Sixth Meeting*, held at Hartford, Conn., Sept. 1875. 8vo. pp. 99. Baltimore, 1875.

THERE has for some years been a growing conviction, here and in Great Britain, that society has a duty to perform in regard to the class of persons given over to intoxication. Insane asylums have cared for, and have benefited, many; but it is well understood not to be their proper work, and indeed to have seriously interfered with it. Institutions designed solely for the treatment of the class in question have been organized, on varying scales, and with varying pretensions. We do not doubt that much good has been done in many cases. A certain shadow of mistrust has, however, been cast over these establishments, by some unfortunate traits in the history or character of individual institutions and managers. It is to be hoped, however, that early errors and mistakes will be corrected, and that what is good and true will remain and bear fruit.

This publication contains, besides the minutes of the annual meeting, several essays read before the Association. These deal with the causation, character, and various aspects of the evil under consideration. While giving prominence chiefly to inebriety as a disease, the writers do not ignore its existence also as a vice. Many very curious facts are stated, and singular relations exhibited.

Confinement in gloomy prisons, with insufficient light and air, poor food and poor sanitary surroundings generally, is stated to be often followed by habitual inebriety, in released prisoners formerly sober. Many curious instances of inebriety dependent on influences which would seem to be wholly disconnected, are here given. Inadequate nutrition, in the subject or his progenitors, is, however, one of the best recognized causative agents.

We are very glad to see a judicious refutation of the popular exaggeration which attributes all crime to intoxication, and which would promise us an immediate millennium as the result of universal total abstinence. B. L. R.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Case of Congenital Hydronephrosis, with Remarks on the Secretion and Excretion of Urine in the Fœtus, and on the facts which tend to prove that during the latter months of Intra-uterine Life the Urine of the Fœtus is passed into the Cavity of the Amnion.*—This is the title of a paper communicated by Dr. Henry Morris to the Royal Medical and Chirurgical Society, May 9th. A case of congenital hydronephrosis, associated with imperforate rectum, in a child of five days old, was described. The abdomen was considerably distended at the time of birth, and continued to increase in size up to the day when surgical aid was sought. After the passage of a catheter along the urethra, a large quantity of urine escaped, and, after an operation had been performed for the purpose of establishing a communication between the rectum and anus, a free discharge of meconium followed. The abdomen subsequently became quite flaccid, but the child died of exhaustion on the seventh day after birth, and on the second day after the operation. No *post-mortem* examination was allowed by the parents. From the symptoms of the case, it is to be inferred that a slight membranous obstruction in the urethra, sufficient to frustrate the slender efforts of the child to expel the contents of the distended bladder, was broken down by the catheter. Other possible explanations are considered, but rejected as being less probable than that above stated. Congenital hydronephrosis, like each of many other congenital deformities, frequently coexists with one or more malformations in the same subject. Thus clubfoot, harelip, imperforate anus, and the absence of a prostate gland have each been associated with congenital hydronephrosis. It is more frequent to find both kidneys affected than only one, and the most common cause of the condition is imperforate urethra or impervious ureters. The question is considered whether, in these cases, the enormous distension of the urinary organs arises from over-excretion on the part of the fœtal kidneys, or from retention of urine through some mechanical obstruction of the passages. It is concluded that the number of cases in which the obstruction and the distension have occurred together is too great to allow of their coexistence being considered accidental, yet the only relation which can possibly be conceived between the two conditions is that of cause and effect. The question which next arises is: "Does not the urine, during the later period, at least, of gestation, ordinarily flow into the liquor amnii, so as to avoid causing congenital hydronephrosis?" Upon this subject, although physiologists are silent, there have been many opinions expressed in favour of an affirmative reply. In illustration of this, excerpts are contained in the paper from the writings of Lee, Prout, Kennedy, Billard, and Howship, and from the Obstetri-

cal Transactions. Before accepting this view as to the excretion of the urine, further proof is sought for in the analysis of the liquor amnii, since there ought to be evidence of some of the constituents of urine in that fluid, if the view be correct. From analyses made by Rees, Frommberg, Wöhler, Gusserow, and others, the presence of urea and many of the salts of urine in the fluid of the amnion has been proved beyond question. On the other hand, the urine of the fœtus in some cases of congenital hydronephrosis has been found to be devoid of urea by Kennedy and Madge. It ought not, however, to be inferred from this that urea had never been formed in these fœtuses, but rather that, owing to the crystalloid character of urea, this substance has escaped from the blood and from the retained urine of the fœtus into the blood of the mother: and it is further suggested that urea may in this same way even disappear altogether from the liquor amnii when fresh quantities cease to be excreted from the fœtal organs. But, dismissing all speculative reasonings, it may be stated that the following are well-ascertained facts: (*a*) That when an obstruction has existed in the urinary organs of the fœtus, the secretion of urine has gone on to a sufficient extent to cause changes similar to those which are seen in the urinary organs of adults after retention. (*b*) That the liquor amnii has been proved to contain urea, besides many salts such as those which are formed in normal urine. (*c*) That fœtal urine in some cases of hydronephrosis has been found not to contain either urea or uric acid, or to contain urea only in very small quantity. The conclusions which appear to be warranted by these facts are: 1. That urine is secreted in considerable quantity during intra-uterine life. 2. That this quantity is far too great to be stored up in a normal bladder and normal ureters. 3. That during the latter part of gestation, at least, urine is passed off through the urethra of the fœtus into the sac of the amnion. 4. That the proportion of urea in fœtal urine is in all probability smaller than it is in the urine secreted after birth, and that, as in cases of congenital hydronephrosis both urea and uric acid have been absent from the urine, it is possible they may also be absent from the liquor amnii. 5. That the quantity of urea in liquor amnii is very small, not exceeding 5 per 1000. 6. That the gradual decrease in proportion of albumen in liquor amnii as pregnancy advances (from 10.77 per cent. in the fourth month to 0.82 at the ninth month, as stated by Taylor) gives some support to the view that the fluid of the amnion is constantly altered by the admixture of some non-albuminous fluid, such as urine, and that this conclusion will be further strengthened if future analyses show that the proportionate quantity of urea and the salts of urine in the liquor amnii increases as the proportionate quantity of albumen diminishes. 7. That the presence in liquor amnii of other of the constituents of normal urine, besides urea, gives support to the same opinion. Although there is something revolting in the idea that for a period of many weeks every human being has lived and floated in a medium partly composed of its own urine, yet the fact ought not to be ignored, as it is a matter of great interest and importance in the development of the life-history of the fœtus, while the condition of the fœtus which results from an obstruction to the escape of the urine ought to be borne in mind by the accoucheur, as it may give rise to tedious and protracted labour, or may even render parturition impossible to the mother till after the destruction of her child.—*Lancet*, May 13, 1876.

MATERIA MEDICA, GENERAL THERAPEUTICS, AND PHARMACY.

2. *Value of Alcohol as a Food in Fever Cases.*—Prof. C. BINZ, of Bonn, discusses this important subject in an interesting article in the *Practitioner* for May. He says that we must regard as a food any substance which, when taken into the system, can serve (1) towards building up the tissues, or (2) towards supplying the warmth and vital force necessary for the proper performance of the various functions of the body.

As the list of positive examples is so extensive, these points can better be illustrated by reference to certain negative ones. Thein, for instance, is not a food, as it passes through the system without undergoing decomposition; nor is ether a food, since it cannot be taken in quantities sufficiently large to contribute by its oxidation any appreciable weight, warmth, or vital energy[1] to the body. Gum Arabic is not a food, because it is not absorbed in the intestinal canal.

Alcohol fails, perhaps, to fulfil the first office of a food according to the foregoing definition, since it is incapable, as far as we know, of supplying material to build up the tissues, but when given in small doses, oft repeated, especially in the case of a sick person, it may be said to surpass all other substances as a species of easily burning fuel, from whose combustion the heat required to generate vital force may be derived. Indirectly, it also answers the first of the aforesaid purposes, for though it may furnish actually no new building material, it spares the reserve supply of fat in the body, which would otherwise have to be burned to give the necessary warmth. In sickness, where but little or no fatty material is supplied by the food, this is of course conservative, but in health no need is felt for a specially combustible form of fuel, and so we see how many persons in good health, under the combined influences of good living, alcohol and bodily inactivity, grow very fat, the alcohol supplying a good deal of the heat required by the system, and some unburned fat continuing to be stored away year after year.

I have convinced myself by a series of experiments that alcohol is completely destroyed in the animal organism.[2] If pure it leaves no taint upon the breath, and where this is present it is attributable to some of the ethers or fusel oil. Thus, in the experiments referred to, I found only traces. I used three different methods: the chromic acid and the iodoform test, and Geissler's Vaporimeter. Their correctness was always controlled by known dilutions in water containing most minute fractions of alcohol. The urine may, under favourable circumstances, contain as much as three per cent. of all the alcohol consumed. This is the highest figure I have been able to get. Aldehyde and acetic acid, the derivatives of alcohol, were absent. The facts observed all seem to lead to the conclusion that alcohol in the body, just as in the flame of the spirit-lamp, is oxidized to carbonic acid and water.

Such being the case, it is evident that every molecule of alcohol burned within the system must yield, not only warmth, but that power to accomplish work with which the development of caloric is always accompanied. Let us see how much.

From direct experiments made by Favre and Silbermann, and by Frankland in England, with a view to ascertain the relative heating power possessed by various combustible substances, gases, etc., it was found that alcohol gave the figure 7; pure coal gave 8, and hydrogen 34.5; which is to be understood as meaning, that one cubic centimetre of alcohol generates heat enough during its combustion to raise the temperature of seven litres of water 1° Cent.; that one cubic centimetre of coal sufficed to raise eight litres 1° Cent., and so on. The unit of the scale thus arbitrarily set up is represented by the amount of heat required to raise the temperature of *one* litre of water 1° Cent., and to this unit the name *Calorie* has been applied. A healthy adult produces about 2300 such *calories* a day. Now, in the process of consuming 100 cubic centimetres of absolute alcohol, equal to one litre of good hock, we set free within our organism 700 *calories*, or nearly one-third of the whole amount of warmth which is produced by the system under mixed diet within twenty-four hours.

With this result given by alcohol, let us now compare the heat-producing power of certain other ingesta as determined by Frankland; for instance, cod-liver oil, a substance which may be taken here as a type of the fatty elements

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[1] Ether, it is true, acts as a cardiac stimulant, but as such it contributes no *new* force to the heart; all it does being to excite the heart so as to make it put forth what force it already has more energetically. In other words, instead of contributing fresh power, it drains away more rapidly that which is left.

[2] Cf. Centralbl. f. d. Med. W. 1875, p. 371. Berlin.

of food in general, being one of the most digestible. Its calorific power is represented by the figure 9.1. Four tablespoonfuls taken four times a day—about 50 cubic centimetres—develop 455 *calories*, supposing the whole quantity to be digested, and this, it will be seen, is only about four-sevenths of what 100 grammes of alcohol supply, or in other words, not more than would be furnished by 65 grammes of alcohol.

The advantage possessed by the latter over the oil is obvious. Besides being infinitely more pleasant to take, the alcohol, if largely diluted with water, in the form of good wine, is readily digested, even in the weakest stomach; and, as has been shown, it is easily and completely disintegrated in its passage through the system. On the other hand, all fatty substances require for their emulsion, absorption, and assimilation, a very considerable amount of work, which of course is only that much more drain upon the powers of a patient.

Thus we can understand how it is that a continual supply of wine enables the patient to resist for a certain length of time the ravages of a severe disease, where no other form of nourishment is accepted by his stomach. Every practising physician who recognizes the value of wine in therapeutics will be able to call to mind cases of typhoid fever, where for several days nothing was taken but wine and water, the patient retaining his strength pretty well all the while. Bricheteau, a French surgeon, relates the case of a boy affected with diphtheria, upon whom the operation of tracheotomy was performed, and who for a month afterwards would take nothing but sweet wine, of which he consumed one and a half bottles daily, besides two ounces of rum, and who during the whole time did extremely well. In this case the sugar of the wine of course contributed something as a food to the whole effect, but being present in the sweetest wine only in small proportion, it could have accomplished only very little.

In such cases it would be unreasonable to suppose that the vital powers of the patient are kept up solely by the stimulating properties of the alcohol, for the nervous system and heart require nourishment as well as any of our other organs, and they cannot be kept going so long by stimulants alone. On the contrary, by so urging them on to activity day after day, without supplying any food to compensate for the wear and tear resulting from such augmented action, it is certain that we would exhaust their forces more quickly than by any other plan of proceeding. Alcohol certainly acts as a stimulant in conditions of extreme weakness, but given for days together when no other combustible material is being supplied to the system, it burns in the tissues, and by means of the heat thus generated, furnishes the body with warmth and the strength necessary to carry on its vegetative functions.

Prof. B. points out the great importance of administering a form of alcoholic beverage free from fusel oil, for if we introduce into the system of a sick man any alcoholic mixture containing fusel oil, the evil effects produced by the latter upon the brain, in this case already weakened by disease, will manifest themselves yet more strongly than they would upon a healthy one.

Finally, he sums up his views, as far as the same concern the practice of medicine, as follows: 1. That alcohol is very frequently a stimulant of transitory power; 2, that in relatively large doses it can serve as a vigorous antipyretic; 3, alcohol, given in small and oft-repeated doses, is a food particularly adapted to cases where the stomach can take in no other "combustible material" to supply warmth and working energy to the organism.

While I thus share in the views which the late Dr. Anstie so ably upheld in England, I do not hesitate, on the other hand, to declare, with respect to the requirements of the healthy organism, that I consider the use of alcohol in health as entirely superfluous.

Where the digestion is healthy, and where a sufficient transfer of nutritive material takes place from the food to the blood, the human body is capable of accomplishing all the functions for which it is designed, and that without the use of spirituous drinks. But the case assumes a different aspect as soon as these two conditions fail. A physician may therefore recommend total abstinence to healthy persons in every instance, but he throws away one of the most valuable of medicines if he carries this principle of *teetotalism* into the sick-room.

3. *Application of Quinia in Fever.*—Prof. C. Binz makes (*The Practitioner*, June, 1876) the following practical remarks on this subject: "It is to be given (1) in large doses from 0.5 to 3.0 grammes (8–48 grains); (2) in a digestible form, that is to say, together with some acid; and (3) during the time when fever tends to decrease.

"The first has been proved by numerous observations in the sick-room. Such strong doses are not poisonous, but agree on the whole better with young than with old people. My second rule refers to the fact that in fever the stomach does not contain sufficient acid to dissolve the sparingly soluble sulphate. As to the hour of administration, we have to deal here, as a matter of course, with similar conditions as in ague fever. The cause of fever is overcome by quinine most easily when its activity is lowest.

"The complaint has often been raised that quinine so easily causes sickness, and it is generally supposed that the vomiting is produced by direct irritation of the stomach. This is not proved to be the case. On the contrary, if the doses of quinine are continued, at the most only a small part of the second or third are ejected. All later ones remain. The stomach absorbs it as hitherto, the nervous system by degrees tolerates the alkaloid, and now only it begins to act upon the chemical processes of the feverish organism. It is very important not to make use of impure quinine. Quinine containing the less efficacious cinchonine is the most deceptive, for this adulteration is somewhat difficult to detect, at least for many practitioners. Much the same must be said of salicine, the bitter principle of willow."

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4. *Salicylic Acid as a Febrifuge.*—Prof. C. Binz states (*The Practitioner*, June, 1876), that "Salicylic acid possesses in all outward respects a resemblance to quinine. It combats the malarial poisoning (Senator, Buss)—although less surely and effectually than quinine—during the period of apyrexia, where, as is well known, neither the pulse nor respiration necessarily need present the slightest abnormity. It is, like quinine, a powerful antizymotic, which can be introduced into the organism in large quantities, circulates there a considerable length of time, and is given off again—at least partially—in an unchanged condition. Even the ringing in the ears and the slight deafness characteristic of cinchonism are not wanting in connection with the medication with salicylic acid. A complete agreement between its behaviour and that of quinine toward certain disease-producing agencies, known, as must be confessed, only by their effects, does not exist. This we have already seen in speaking of intermittent fever. Acute articular rheumatism, a disease in which quinine avails so little and salicylic acid so much, furnishes a second and converse example. Considering the chemical dissimilarity of the two substances, it is not to be expected that there should exist a similarity between their modes of action on more than the general points involved. This general resemblance, however, is unquestionably present, and so we shall have to seek an explanation of the manner in which their therapeutic action is exerted in the same channels."

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5. *Effects of Salicylate of Soda in Reducing the Temperature of the Body.*—Professor Köhler, of Helle, shows that both salicylic acid and the salicylate of soda, when injected into the blood in rabbits, not only cause a fall in the blood-pressure, but also a marked diminution in the frequency of the pulse, and also in that of the respirations; but that whereas the soda-salt acts equally well, whether injected into the jugular vein or into the stomach, the salicylic acid in aqueous solution (1 in 300) has no effect, when given by the stomach, either in reducing the blood-pressure or retarding the pulse. It is, therefore, according to Köhler, almost certain that salicylic acid becomes converted into its soda-salt by combination with the alkali present in the intestinal secretions, and that it is absorbed into the blood and produces its physiological action in this form. The reason why a solution of the acid injected into the stomach of a rabbit remains inactive is, probably, that it is unable to combine with sufficient alkali to supply an effective dose of salicylate of soda. According to the physiologist, therefore, salicylate of soda is preferable to salicylic acid as a

drug, because its action is direct, whilst that of the latter is indirect; and it is further preferable, because it possesses all the useful properties of the acid without its disadvantages; and—what especially interests us here—because it has a most distinct power of reducing the temperature of the body, not only in fever, but also in the healthy state. Thus 26 cubic centimetres of a solution of 1 in 30, injected into the stomach of a rabbit weighing two kilogrammes, reduced the temperature from 36.2° to 34.6°, and even to 34.0 C.; and the same quantity of a solution of 1 in 60 injected into the jugular vein reduced it to 35.2°. On the other hand, Professor Köhler, from his own observation of the effect of the salicylate (in one or two five-gramme doses) on patients with typhoid fever, completely agrees with those observers who have praised its anti-febrile properties in that disease; and he states that the temperature can be reduced by it for twenty-four hours, or even longer. The fact that the salicylate, according to Köhler, reduces even the normal temperature, agrees with Riess's results in the healthy human subject; for the latter found that five grammes reduced the temperature 0.9° C. on an average of twenty-three experiments in from four to six hours. Comparing the other results of experiments on animals with the effects of the drug on man, we find that there is a discrepancy between the statements of observers—which, however, is perhaps more apparent than real; thus, whilst Riess and Goltdammer observed that the only effect of the drug on the pulse was to make it stronger, without diminishing its frequency, Nathan observed not only that the number of beats became much smaller, but he also found that the respirations fell almost to their normal number. He gave, however, much larger doses than the other two—as much as eight grammes at a time, followed sometimes in two hours by a second dose of four grammes; and as it was after very large doses that Köhler found the pulse and respirations so much affected in rabbits, it seemed likely that it may require similarly large doses in man to modify the functions of respiration and circulation.

All things considered, the salicylate of soda promises well as an anti-febrile remedy. Much less unpleasant to take than quinine, producing no irritation of the digestive organs or of the kidneys, and completely free from narcotic properties, time may not improbably confirm Professor Köhler's estimate of it, when he predicts for it the greatest future of any of our scanty stock of drugs which reduce the temperature of the body.—*Med. Times and Gaz.*, May 6, from *Centralblatt Med. Wiss.*, Nos. 10 and 11, 1876.

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6. *On the Therapeutical Use of Nitrite of Amyl.*—Dr. ROBERT PICK (*Deutsches Archiv für Klin. Med.*, Feb. 1876), after describing the physiological properties of the nitrite of amyl, adduces the experience of several German physicians as to its therapeutical uses in various affections, chiefly of a nervous character. In cases of epilepsy, for instance, the inhalation of a few drops of the nitrite, taken at the moment of the sensation before the paroxysm, acted as a palliative, and sometimes warded off the attack altogether. Dr. Mäurer, of Laubbach, near Coblenz, has given the drug in several complaints in which a spastic contraction of the vessels appeared likewise to play a part. In hemicrania, for instance, he found it very useful, and also in the colic of menstruation, and in anæmia of the brain; and as he thinks that many cases of epilepsy depend on this anæmia, caused by spastic vascular contraction, his success with the nitrite in some epileptic cases is explained. Dr. Pick relates a few cases from his own experience where the nitrite was more or less useful, the complaints being hemicrania, neuralgic pains in the face and head, and supra-orbital neuralgia. He also found it useful in a case of convulsions in a child, and he has often employed it with beneficial and rapid effects in cases of fainting fits.—*Brit. and For. Med.-Chir. Review*, April, 1876.

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7. *Physiological Action of Gelseminum Sempervirens.*—In a series of articles which have recently appeared in the *Lancet*, Dr. BURDON SANDERSON has shown that gelseminum exercises a very remarkable influence on the function of respiration, and that when the drug is given in fatal doses death takes place, as in poisoning by curare, by gradual arrest of the respiratory

movements. Facts have also been referred to which plainly indicate that this result is not, as in the case of curare, to be attributed to suspension of the functions either of the motor nerves or of the muscles to which they are distributed, so that the conclusion can hardly be avoided that this agent exercises its influence directly on the cerebro-spinal centres, and particularly on those parts which preside over the rhythmical respiratory movements.

In a further consideration of this subject (*Lancet*, April 1, 1876), Dr. Sanderson concludes that the drug acts on the respiratory function by paralyzing the automatic respiratory centre: but that the process of extinction of the respiratory movements, which might otherwise be expected to be gradual and progressive, is prevented from being so by the intervention of disturbances of which the explanation is to be found in the imperfect arterialization of the circulating blood.

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8. *Gelseminum Sempervirens.*—The Nos. of the *Lancet* for January 22d and March 18th, contained an account of some experiments made by Dr. Sydney Ringer and Mr. Wm. Murrell on the action of this article. These experiments show: "1. That, in animals, gelseminum primarily affects respiration. 2. That it reduces the frequency of the respiratory act. 3. That the affection of respiration appears before the paralysis, and passes off earlier. 4. That gelseminum causes death by asphyxia. 5. That, if artificial respiration be maintained until the drug can be eliminated, recovery will take place.

"Such are the facts. What is their explanation? On what part of the respiratory system does the drug exert its influence? Dr. Burdon-Sanderson has kindly consented to make the experiments necessary for the solution of these problems, and will publish the results in the ensuing paper."

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9. *Antiseptic Properties of Madder Root.*—M. de Restaing read a note to the Academy of Medicine of Paris on this subject. A specimen of meat had been preserved from July 27, 1875, to February 27, 1876, in a jar containing powdered madder, which was opened a dozen times to verify the results obtained. The weight of the meat had decreased from 119 to 25 grammes, without any smell, or any development of living organisms having shown themselves. From these experiments, the author thought it would be advisable to institute similar trials for the preservation of dead bodies; perhaps by this method means might be found of conciliating the presence of cemeteries in the vicinity of great cities with the sanitary conditions which now so greatly occupy public attention.—*Lond. Med. Record*, May 15, 1876.

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10. *Erythroxylon Coca.*—Prof. Bouchardat states that this article, introduced into France some years ago, has rendered most valuable service in therapeutics almost equal to that rendered by the cinchona bark. M. Bouchardat considers the coca as a stimulant to the nervous and muscular systems, and ranks it as such with tea and coffee. He terms it also a "substance d'épargne," or that which prevents the rapid waste of tissue, and thus enables the consumer to go a long time without food. The leaves are either masticated or made into an infusion, and used like tea with rum and sugar, or with sugar and milk. The leaf contains an essential oil, which is of an aromatic odour coupled with the flavour of the fresh plant. The slightly acid and bitter taste of the leaf may be attributed to the presence of tannin, and to an alkaloid somewhat analogous to atropine, and is termed "cocaine." An infusion made with the leaves is perfectly clear and of beautiful yellow. It has an agreeable odour, and like the leaf itself is slightly acid and bitter. Many of the French people use the infusion as a substitute for tea, to which the coca is preferred, owing to its being more stimulating, and at the same time less expensive. A "pharmacien," named Joseph Bain, was one of the first to introduce it into medicine in France, in the form of elixir and wine which are frequently prescribed in prolonged convalescence, and in cases accompanied with great prostration of strength.—*Brit. Med. Journ.*, April 15, 1876.

11. *Experiments on Ergot of Rye.*—Dr. G. LEVI concludes (*La Sperimentale*, Nos. 8 and 9, 1875) from experiments undertaken by him that it is to the phosphoric acid it contains that ergot of rye owes its properties.

After having shown the effect obtained in three bitches by the employment of medicinal phosphoric acid, he relates two observations made at the Maternity of Pisa by Dr. Garzella, on two women aged respectively twenty-five and twenty-eight years.

The following are the conclusions from the researches of Dr. Levi:—

(1) The therapeutic effects derived from ergot of rye are due to the phosphoric acid it contains.

(2) In the diseases in which the employment of ergot of rye is useful, the employment of phosphoric acid renders identical service.

(3) Phosphoric acid acts with equal intensity and rapidity with ergot of rye.

(4) The quantity of soluble phosphoric acid found in recently powdered ergot of rye is in proportion to the activity of the drug.—*British and Foreign Med.-Chir. Review*, April, 1876.

12. *Anæsthetic Action of Croton Chloral.*—M. CHOUPPE communicated to the Paris Biological Society (May 6, 1876) the result of his experiments on the anæsthetic effects of croton-chloral injected into the veins. Complete anæsthesia was produced by the injection of gr. j of this substance; to obtain a like result from chloral would require about gr. iij. The sleep was not accompanied by any cardiac disturbance, and the acceleration of respiration was temporary.

M. Trasbot mentioned that in experiments made at Alfort, small hemorrhagic spots were found in the lungs after the injection of anæsthectic agents, and in one case even death resulted from pulmonary hemorrhage.—*Le Progres Médicale*, May 13, 1876.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *Inflammation.*—Dr. G. THIN has published in the *Edinburgh Med. Journ.* a series of papers on this subject, the drift of which he thus summarizes in his concluding paper in the No. for April last.

"My object has been to show that when a tissue is the seat of the changes which constitute the condition known as inflammation, these changes are divisible into two categories, the destructive and the reparative. The destructive changes consist, as regards the fibrillary tissue, in swelling, softening, chemical change, and disintegration; as regards the cellular elements, in division of the nuclei into small parts, swelling, death, and disintegration of the cell. The destructive change extends towards the bloodvessels, or directly implicates them; the weakened vessel permits the escape of the fluid and formed elements of the blood, and with the exhaustion or removal of the cause of the primary destruction, the process of repair begins by organization of the plasma and colourless blood cells. From the former, the ground substance (fibrillary tissue, etc.) is formed; from the latter, all the cellular elements, of what form soever. Flat cells, spindle and stellate cells, non-striped muscle cells, epithelial cells, all owe their origin to the lymph (or colourless blood) corpuscles. But the type of cell once established by the development of the original corpuscle, there is afterwards neither retrogression nor metamorphosis. The epithelial cell never again becomes or produces the colourless blood cell, nor the spindle cell develop into an epithelial cell. *Omnis cellula e cellulâ*, but not in the sense of new cells being begotten by the fixed cells of developed tissue. With the development of the free lymph cell of the fluids into a fixed element of the tissue, the power of reproduction is lost. So much, at least, I believe to be proven in regard to inflammation.

"The changes which cells undergo in this process have been erroneously asso-

ciated with the appearance of colourless blood cells in the spaces of the tissue. Between the one class of phenomena and the other, no direct relation had ever been proved, and the results of more rigid observation have shown that none exists."

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14. *Arteriitis Obliterans.*—Under the above title, Dr. Carl Friedlander, Assistant in the Pathological Institute at Strasburg, has described in the *Centralblatt Med. Wiss.* (No. 4, 1876) what he states to be "an extremely common affection of the arterial system, which has, up to the present time, almost entirely escaped notice." It consists in the development of a connective tissue, very rich in cells, inside the innermost coat of the small and middle-sized arteries, which leads to contraction of the lumen of these vessels, and finally to its complete obliteration. The earliest stage of this affection consists in a growth of small, closely agglomerated cells between the innermost elastic lamellæ and the endothelium; later on, these cells increase in size, and a greater or less quantity of intercellular substance is formed, so that the tissue assumes the character of granulation tissue, and there may be, in addition, a development in it of new vessels. The new growth may either invade the whole periphery of the lumen or may project into the latter only from one side. It may preserve the character of granulation tissue for a long time, or else may develop into a tough and sometimes completely sclerotic connective tissue. The muscular coats may become completely replaced by connective tissue in some cases in which the vessels are involved, in such chronic inflammatory processes as are attended by much induration; for example, in the callous edges of ulcers and in chronic metritis. This "arteriitis obliterans" is rarely *primary* in its origin; it is found wherever there is acute inflammation in the tissues which the vessels supply, or else where granulation tissue is the result of chronic inflammation, or where this has passed on into induration, or finally into caseation. As a "physiological type" of this affection, Dr. Friedländer mentions the process by which the ductus arteriosus and the umbilical arteries become closed in the fœtus after birth, for this chiefly depends on a similar cell-growth in the intima.

Arteriitis obliterans, as a pathological process, plays a more or less prominent part in most chronic interstitial inflammations, but it is in *the lungs* that it assumes the greatest importance, especially as a link in that chain of phenomena which go under the name of phthisis. It exists not only in those vessels which are found lying free in cavities or in the immediate neighbourhood of ulcerating surfaces, but it is extremely frequent, in fact, almost constantly present, in the recent lobular and lobar inflammations which lead eventually to breaking down of the tissues of the lung. In animals in which affections analogous to phthisis have been produced experimentally (for instance, in rabbits in whom the inferior laryngeal nerves had been divided), arteriitis obliterans commences in the first day or two after the experiment. It seems, therefore, impossible to avoid the idea that the new growth must have a direct share in determining the malignant course of this disease, owing to the arterial anæmia which it produces in the affected tissues. This form of arteriitis also occurs in different kinds of tumours as well as in their immediate neighbourhood. It is habitually present in fibromata and in elephantiasis, and also in cancers in which the connective-tissue element predominates, especially scirrhus. It is probable that the cells of which the new growth consists in its earliest stage are, to a large extent, derived from wandering cells which have found their way into the intima from the vasa vasorum, but that they also take their origin from proliferated endothelial cells as well as from elements which have made their way between the endothelial cells out of the arterial blood. There is a very close resemblance between arteriitis obliterans and the processes which occur during the organization of thrombi. They differ only in their very first stages, and in their finished state it is impossible to distinguish one from the other, except by the pigment which remains as a mark of a previous thrombus, though this need not even necessarily be present. Dr. Friedländer has observed the occurrence in the veins of a process similar to that in the arteries, but it is much less common in them, and much more often complicated with thrombosis.

A process which corresponds very closely to Dr. Friedländer's arteriitis ob-

literans has been described by Dr. O. Heubner ("Die luetische Erkrankung der Hirnarterien"; Leipzig. 1874), as being the essential feature in syphilitic disease of the cerebral arteries; and here it appears to be sometimes primary in character, although in the majority of cases it is dependent on meningitis or gummy tumours. The cell-growth, according to Heubner, lies immediately under the endothelium, and he believes that it originates chiefly from proliferation of the cells of the latter, and not, as Friedländer suggests, from wandering cells. He also describes the existence of long, spindle-shaped cells which form a thick network under the endothelium, and regards round cells as merely an accidental and not an essential element in the growth. The syphilitic arteriitis almost always attacks one side of the artery, whereas arteriitis obliterans generally involves the whole periphery of the lumen. In both cases, however, the final result is very similar, and the vessel involved either becomes obstructed owing to thrombosis, or totally obliterated by the contraction of the new connective-tissue.—*Med. Times and Gaz.*, May 20, 1876.

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15. *Athrepsia.*—The number of the *Gazette Hebdomadaire* for April 7 contains a *résumé* of a course of lectures which Dr. PARROT has been delivering during the last two or three years, and which was reported in detail in the *Progrès Médical.*

By this term (α, and θρέψις nourishment, from τρέφω) Prof. Parrot wishes to indicate the affection of the digestive canal in young infants characterized by an excessive disturbance or destruction of the process of nutrition. The symptoms have been long known and often well described, but have not been hitherto regarded as constituting an affection having its own causes and special morbid process. It is to it that is due the fruitful mortality of nurse-children, and upon it that hygiene exerts so much influence. On the infant passing from the fœtal state, although disturbances of nutrition are the principal cause of disease affecting it, this is not the only cause, for besides the infants that are born viable and under good conditions, and who may become the subjects of consecutive digestive disturbances from anti-hygienic and other causes, athrepsia will especially affect those who are born in a debilitated state, whether from being before their time or from imperfect formation. In such the respiration is found difficult, rare, or superficial, the pulse can be scarcely felt, and the sounds of the heart are only heard with difficulty. Everything which impedes nutrition is a predisposing cause of athrepsia. Thus, harelip or perforation of the palate impedes sucking, and coryza (an affection thought little of by the friends) may in this way prove fatal.

There are three stages to be observed in the disease. In the first the stools are observed to be frequent, liquid, yellow, or green; and these are followed by diminution of urine, thirst, restlessness, and loss of sleep. In the second period the stools acquire a repulsive smell, and there are first regurgitations and then vomiting, the appetite also diminishing. The child utters peculiar cries, and is emaciated, its facies being dejected, and its bodily heat sensibly diminished. Aphthæ accumulate in broad and thick plates on its tongue and fauces, adding another obstacle to digestion. In the third period the child passes into a hopeless state, the emaciation becoming excessive, and the stools more and more frequent and fetid. Although tormented by thirst, it is unable to suck or to swallow. The temperature continues to descend, the body remains immovable, and the limbs rigid; the abdomen in most cases is flattened, and the respiration gets slower and slower. The vomiting, which has been increasing in frequency, at this stage immediately follows ingestion.

With respect to the lesions produced, Prof. Parrot observes, first speaking of aphtha or *muguet*, which here plays so important a part, that it is the athrepsia which gives rise to the appearance of the parasite in the economy, the *muguet* being a mere incident, and never constituting the disease. But while we should not attribute to it the results due to the athrepsia itself, it is a painful complication, which by impeding sucking renders nutrition yet more difficult. While admitting that the presence of the germs of the parasite is indispensable, Prof. Parrot insists that these can never become developed unless the digestive canal and the buccal mucous membrane are in an altered

condition—thus making this dependent on athrepsia, instead of regarding, with Valleix, the *muguet* as the initial cause. Besides this there may be present ulcerations with loss of substance of the velum, and deposits which from their seat Prof. Parrot terms *plaques pterygoidiennes*, and which are almost as common as the *muguet* itself. The lesions of the skin that are observed are erythema, ulcerations, and pemphigus. The erythema, which is especially found about the buttocks and external genitals, Prof. Parrot believes, is caused by the diarrhœa, and disappears with it. The ulcerations are found generally in the heels and the internal malleoli, and sometimes along the edges of the feet. They occur only at the advanced period, and are of bad augury. The pemphigus is more rare than these two lesions, the athrepsia conferring upon it a cachectic appearance. The skin, too, in place of the normal red of the new-born infant, is of a livid yellow, and in some parts bluish, as around the mouth, the hands, etc. Induration also is a constant sign, the skin seeming uniform without any folds, and unable to be separated from subjacent parts. When this induration affects the face, the rigidity of the lips and of the buccal parietes renders suction and deglutition impossible—giving the child an appearance which has been mistaken by many observers for tetanus, and has been called erroneously trismus of new-born infants. The occurrence of coma and convulsions, sometimes of a complex epileptiform character, indicates the approach of death.

In speaking of the treatment, Dr. Parrot observes that athrepsia is a disease which may be induced in any child exposed to nosocomial influences and a deleterious diet, and our first care must be its nutrition and the choice of a nurse. Before allowing the child to suckle, we must give it six or eight times in the twenty-four hours a tablespoonful of a mixture consisting of three grammes (forty-five grains) of subnitrate of bismuth and 300 grammes of syrup of comfrey or syrup of quince. When the diarrhœa persists, a mixture of three grammes of bismuth, fifty of lime-water, and fifty of syrup of comfrey should be given; and if there is agitation, slight fever, and a foul tongue, from five to ten grammes of syrup of ipecacuanha may be administered. In the acute form of athrepsia, we must proceed with great energy, giving every ten minutes a teaspoonful alternately of two iced drinks—the one being prepared with 200 parts of sugared water and ten of old cognac, and the other consisting of beef-tea quite devoid of fat, slightly salted and diluted with equal parts of water. Three or four times a day the child should be placed for five minutes in a bath at 35° C. (95° Fahr.), to which has been added for every twenty-five litres of water forty or fifty grammes of flour of mustard. Nutritive enemata are of no use whatever.—*Med. Times and Gaz.*, May 27, 1876.

16. *Athetosis and Post-hemiplegic Disorders of Movement.*—Dr. W. R. Gowers read a paper before the Royal Med. and Chirurg. Soc. (May 9th), the object of which was to describe two cases of disordered movement analogous to that to which Hammond has given the name of "athetosis," and to consider the relations of that affection in a general survey of the various forms of unilateral motor disturbances. One of the cases had presented slow involuntary movements leading to various distortions of the hand, and a similar, although less striking, condition in the foot. The condition had supervened on a slight attack of hemiplegia. Under electrical treatment the spontaneous movements, after existing two years, ceased, only inco-ordination of voluntary movement remaining. In the other case the movements were slight, and only characteristic during extension. They had been preceded for some time by unilateral numbness. It was pointed out that neither the clinical history nor the supposed pathology of athetosis affords grounds for separating it from other forms of disordered movement commonly seen after hemiplegia, but any one of which may occur as a primary affection. The essential element in athetosis is a slow remitting mobile spasm, and it differs from the common post-hemiplegic contracture chiefly in the absence of fixed spasm. The varieties of quick intermitting spasm, regular and irregular, were then described, and its effect in producing inco-ordination, both choreiform and violent. In a case of extreme inco-ordination of the arm after hemiplegia, the post-mortem showed

a cicatricial induration, extending through the middle of the optic thalamus. There was no secondary degeneration of the spinal cord. In "late rigidity," it was pointed out, two elements may be discerned—one varying, ceasing during sleep, increased by an attempt at movement; the other unvarying. The latter only is to be referred to changes in cord and muscle; the former possesses many features in common with mobile spasm, and is probably to be referred to brain changes. Several illustrative cases were shown, and a table was exhibited, grouping the various disorders of movement under the three heads of "intermitting," "remitting," and "fixed" spasm.—*Med. Times and Gaz.*, May 27, 1876.

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17. *Menière's Disease.*—Dr. DUFFIN communicated to the Clinical Society of London a case of this disease that he had observed for two years. Besides great degradation of hearing, the man was liable to paroxysms of subjective noises in the right ear, associated with fits of vertigo and a tendency to fall to the right. Skull-vibrations to a tuning-fork were almost, if not quite, absent on the affected side, although the whole range of the piano forte could be dimly followed. After eighteen months considerable amelioration set in; but the left ear then became somewhat involved, and the vertigo tended to throw him towards his left side. In one of his later fits, the patient for the first time lost consciousness, but without any other indication of epilepsy. Dr. Duffin remarked on the pathology of the vertigo, alluding to three fatal cases of injury to the labyrinth recorded by Knapp, and to Dr. Lockhart Clarke's researches on the cerebellar and vagus connections of the roots of the acoustic nerve. He also described the effect of pressure on the vagus of his patient, which was to throw the man into a faint, and to slow his heart during recovery. He then alluded to the functions of the cochlea, and the value of musical intervals in the appreciation of the duration of time. Lastly, he alluded to the prognostic value of skull-vibrations in suspected disease of the labyrinth.

Dr. Hughlings Jackson said it was only during the last few years that he had known the pathology of these cases. He had of late been consulted by many persons, especially by medical men, for symptoms similar to those just described; they often would not believe the ear was affected, although troubled with noises in it. He believed the ear was affected, however, and in many different ways too; sometimes hemorrhage into the labyrinth would appear to be the cause of the symptoms. In some cases of paralysis of the portio dura, temporary giddiness had been observed at the onset, which was due, perhaps, to the sudden rigidity caused by the hemorrhage. Dr. Jackson thought the cochlea was concerned both in perceiving sounds and intervals; but he could not agree with the opinion that the cochlea, on account of its structure, perceived intervals only, any more than he could think the retina had the power of measuring space because extension was one of its qualities. As regarded the side to which the patient fell, he related the case of a gentleman shooting, who had put a large charge into his gun; the charge had exploded with a loud bang, and the gentleman was thenceforth deaf on the right side, and had always a tendency to go to the left in walking. In another case of injury to the head, the patient always reeled, and was giddy. Sometimes such patients were partially or quite deaf. In such case, the cerebellum might be diseased as well, but disease of the cerebellum did not produce deafness.

Mr. Dalby had noticed the very frequent occurrence of giddiness and tinnitus with deafness. He had divided the cases into two classes; one in which the patient was suddenly seized with giddiness, and was deaf, the giddiness then ceasing; the other in which giddiness first came on, and was followed by deafness and tinnitus, and the attacks of giddiness were subsequently repeated. He related particulars of certain cases of the former class. A physician had fallen in the road in an attack of vertigo, and, upon being taken home, was found to be deaf. A gentleman playing upon the piano had a sudden attack of giddiness; he first lost the power of hearing the high notes, and was always afterwards quite deaf. Other cases in which succeeding attacks occurred he believed to be much more frequent, though probably the lesion was in the same situation. In the cases in which giddiness came on in periodical and recurring

attacks, the patient would be conscious of a loud sound; but if the sound were higher and louder, the faculty of hearing would cease. But perfect deafness was not arrived at. In all cases he thought the labyrinth was involved.

Dr. Buzzard thought that more than one condition had been included under the title of Menière's disease. He had seen numerous cases in which there was a tripod of symptoms—tinnitus aurium, vertigo, and cranial neuralgia. In many of these, which, in other respects, resembled slight examples of the disorder they were considering, there was no deafness, but the neuralgic character was very marked. He had also seen several cases like Dr. Duffin's, and some of far greater severity; in one, the patient kept his bed for three months, unable to turn his head to the left; in another, there were constant vertigo and vomiting for six weeks. In all, however, the attacks, of whatever length, were paroxysmal, subject to recurrence, and combined with neuralgia of the fifth or occipital nerves. Granting the probable correctness of the physiological explanation of the cause of the vertigo, he thought that there must very frequently, indeed, be no structural lesion of the semicircular canals (the shortness and distinctly paroxysmal character of the outbreaks in many cases precluding this), and suggested that something like the "nerve-storm" of migraine swept the medulla oblongata, and produced in the auditory nerve a condition comparable with the neuralgia of a common sensory nerve, which displayed itself by these peculiar symptoms. In his cases Dr. Buzzard added, remedies useful in neuralgia, iron, and the local application of belladonna appeared to have been of service.

Dr. Ferrier remarked that the pathology of Menière's disease had had a new light thrown upon it, especially by the researches of Dr. Crum-Brown in this country, and Professor Mack in Vienna, and by the experiments of Goltz on the function of equilibration. The semicircular canals were an essential part of the mechanism by which equilibrium was maintained. Impressions were generated in the ampullary nerves, according to the direction in which the head was moved or rotated. Crum-Brown had shown that the canals of the two sides were so arranged in reference to the possible axis of rotation, that the ampulla at right angles to each axis received irritation, owing to inertia of the endolymph, contrary to the direction of the rotation. Hence, rotation to the right coincided with irritation of the left horizonal ampulla. Dr. Ferrier had endeavoured to show, in a paper which he had recently written on this subject (*West Riding Reports*, vol. v. 1876), how these facts were to be applied to the elucidation of the loss of equilibrium in Menière's disease. The direction in which equilibrium was overthrown was to the side opposite the seat of irritation of the ampullæ. Dr. Ferrier believed that Menière's disease was an irritative lesion, and that the way in which the patient fell depended on which canal was the seat of irritation. In Dr. Duffin's case there appeared to be an exception to the rule, that the patient fell to the side opposite, because his patient fell to the right, though the disease was apparently chiefly in the right ear. But this was a complicated case, for there was evidence of affection of both ears at the commencement; and, as afterwards proved, when the symptoms became clearly and definitely fixed in the right ear, the patient began to fall to the left.—*Brit. Med. Journal*, March 11, 1876.

18. *The Diagnosis of Empyema.*—A new method of distinguishing between different kinds of pleuritic effusions has lately been brought forward by Professor Guido Baccelli, of Rome,[1] and promises to be a real addition to our diagnostic aids. We have hitherto been able to say whether there was fluid in the pleura or not, but the question of its serous or purulent nature has had to be answered by reference to a number of collateral circumstances, none of which by itself was conclusive, and which, as Professor Baccelli points out, may even fail collectively. We have decided that there was an empyema present when an effusion has remained long unabsorbed, while at the same time

[1] "Sulla Trasmissione dei Suoni attraverso i Liquidi Endopleurici di Differente Natura," di Guido Baccelli, Professore di Clinica Medica nella R. Università di Roma.—(*Archivio de Medicina Chirurgia ed Igiene*, 1875, Dispensa vii. e viii.)

the fever kept up, and the patient gradually lost flesh and strength, and perhaps suffered from œdema of the extremities. By the new method, which is quite simple, we are at once able to determine whether the exudation is serous or purulent. It is founded on a physical law—namely, that the vibrations of sound in liquids are transmitted *inversely* to their density. In a serous fluid, therefore, the sound passes more readily than in a purulent; and it is found that, whereas the whispered voice (*la parola aforcicamente sillabata*) can be heard clearly,[1] accompanied with bronchial expiration, at the base of a *serous* effusion, the spoken voice is not transmitted nor bronchial breathing heard over a purulent exudation. To use the method accurately, two conditions must be complied with: (1.) The ear of the auscultator, which is not applied to the chest, must be withdrawn from all external sounds by closure with the finger, and the ear must be firmly pressed naked against the chest, unassisted by a stethoscope. (2.) The patient must be placed in such a position that when he speaks the bundle (*fascio*) of oral vibrations shall issue in a direction diametrically opposed to the ear of the listener. This condition is attained, supposing that the right lung is being auscultated behind, "by turning the patient's head so much to the left that, by drawing an imaginary line from his mouth to the point in the thorax where the ear is applied (on the posterior paraxillary line), it passes diagonally downwards through the centre of the effusion." Besides distinguishing between a simple serous effusion and a purulent effusion, this method enables the existence of a mixed effusion to be detected—*i.e.*, of a serous exudation, in which flakes of fibrine and a moderate amount of leucocytes are contained,—since the latter, by their subsidence to the lower part of the thorax, prevent the passage of the whispered voice over the area which they occupy.

The following case, which is one of several which Professor Baccelli details, will illustrate the application of this principle in practice: "Santi D., aged twenty years, a peasant, was admitted with symptoms of pleuritic effusion filling his whole left chest. Here the whispered voice was transmitted clearly over the anterior surface of the thorax along the paramammary line as low as the fifth intercostal space. The right border of the heart was under the right nipple, and would be indicated by a line descending obliquely from the second piece of the sternum. The actual displacement amounted to seventeen centimetres measured horizontally. As far as the edge of the eighth rib the whispered voice was transmitted distinctly. Over the left lateral (axillary) region it was heard clearly to the sixth rib; indistinctly to the eighth. Over the left back the whispered voice was transmitted clearly from above downwards as far as to two centimetres above the angle of the scapula, and indistinctly for five centimetres lower still. The diagnosis founded on the physical signs was 'an exudation of moderate density containing fibrine, albumen, and leucocytes.' Paracentesis was performed, and one litre and a half of serum, in which floated some flakes of serum, and which contained a moderate amount of leucocytes, was withdrawn." The simplicity of this new method will insure for it, we feel confident, general acceptance. Professor Baccelli's reputation is sufficiently high in Italy to render his suggestions worthy of our best consideration in this country, and we shall hope before long to hear of cases to which his method has been successfully applied by English physicians.—*Med. Times and Gaz.*, March 18, 1876.

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19. *Imperfect Mastication as a Cause of Diarrhœa.*—Dr. A. W. EDIS calls attention (*The Practitioner*, April, 1876) to what he justly considers a frequent cause of diarrhœa, viz., deficient mastication from defective or decayed teeth. It is also most certainly a very frequent cause of dyspepsia in various forms, and the only mode of relief for these ailments is by having adjusted properly in the mouth artificial teeth to assist in mastication.

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[1] Professor Baccelli makes his patients say the words, "trenta-trè," pronounced "tren-tah-tray;" but probably "ninety-nine" would do as well.

20. *Blisters for the Cure of Diphtheritic Paralysis.*—Dr. W. F. Wade, Physician to the General Hospital, Birmingham, in an address delivered before the Birmingham and Midland Counties Branch of the British Medical Association, which contains many valuable practical suggestions, relates some striking cases, illustrative of the efficacy of blisters in diphtheritic paralysis. He says: "I saw, a good many years ago, a lad who, from paralysis of the muscles of the throat, could swallow nothing, and a part at least of what he did try to swallow got into his lungs. At least, there was a loose mucous rattle over the back of the chest, which seemed probably due to this cause. His debility and emaciation were extreme, and he died a few days afterwards.

"Last year, I saw just a similar case in a young girl. In an attempt to swallow a little water in my presence, I thought she would have been choked. The voice was almost extinct; the arms and legs almost powerless and terribly wasted. She was dying of inanition; and, with the former case before me, it seemed almost a certainty that, unassisted, she could not live more than two or three days at the outside. Even when it gets well, diphtheritic paralysis generally, if at all severe, takes a long time—weeks or months—to do so. Nutritive enemata are a poor resource under such circumstances. Reflection on the former case had led me to the conviction that the only real prospect of recovery in a similar one would lie in frequent feeding through an œsophageal tube. My colleague said it would be impossible for him to undertake the passage of this sufficiently frequently. He asked me to take her into the hospital, and I readily assented; for, although considerably above the ordinary rank of hospital patients, the circumstances of her case made her eminently proper for admission. The parents, however, foolishly fond, absolutely refused the proposition, and urged me to do something for her at home. After many most earnest endeavours, we failed to move them. But what to do! I protest I could not at the moment have felt much more helpless had the undertaking been the bringing of the dead to life; the more so, that we know nothing of the pathology of this paralysis. In what part of the nervous system changes have occurred, what is the nature of these changes, are matters upon which our ignorance is absolute. One thing was vividly before my mind: the necessity that whatever agent we employed should be one capable of acting speedily. I happened to recollect that in the last century it was the custom to treat some affections of the throat with blisters to the back of the neck; indeed, they were used in diphtheria itself, but only in its early stages, not in the subsequent paralysis. I had myself seen curious and speedy results in some throat-inflammations from blistering the nape. Whatever effect blisters produce is generally soon after their application. Upon grounds so slender, and for reasons so trivial, that in any ordinary case it would be a disgrace to act upon them, we resolved to apply a blister to the nape. I saw her no more; but some time afterwards I learned that within thirty-six hours she was able to swallow. She made a good recovery, though the paralysis of the arms and legs took their usual long time to disappear.

"In the beginning of this year, a man was admitted into the General Hospital under my care suffering from diphtheritic paraplegia. With a person holding him on each side, he could just shuffle along the ward to his bed. I put a blister about an inch and a half wide the whole length of the back, by the side of the vertebræ. It ought to have been stated that his arms were considerably paralyzed, as well as his legs. In a day or two, he could walk to the lobby without assistance. A second blister on the other side of the spine cured him.

"Shortly after this, a woman from the country was carried into the out-patient room, being unable to put one foot before the other. Dr. Carter diagnosed diphtheritic paralysis, and blistered the back. That day week, she walked from the station to the hospital and back. Since then, I have seen a patient who, after some acute throat-affection, was supposed to have stricture of the œsophagus, to relieve which a bougie had been repeatedly passed. I have seen this mistake made before. The total insensibility of the fauces made it probable that there was paralysis of the throat, and she too was very speedily relieved by blistering. It is now all but five years since I saw a lady who had then been suffering for some time, I think a good many months, from diphthe-

ritic paralysis, especially affecting the legs. She got no better, and subsequently was seen by two very eminent metropolitan physicians, who confirmed the diagnosis, but failed to effect a cure. In the course of this summer, her case recurred to my mind, and having ascertained from her medical attendant that she remained in the same state, viz., able only to crawl a few yards with great difficulty, I advised him to try the effect of a blister or two. As might be expected, after so long a time, the effect was less speedy, but a few weeks after she was able to walk very much better. At this time, she was so shocked and overwhelmed by a domestic calamity that the treatment could not be repeated, and the case remains inconclusive, though not without its significance. Diphtheritic paralysis shifts its seat, and may, indeed, disappear unexpectedly in some cases, though I have personally seen less of this fugitiveness than some other writers appear to have done. The doctrine of probabilities forbids us, I fancy, to thus explain away the curious, if not very extended, series of cases above given."—*Brit. Med. Journ.*, October 16, 1875.

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21. *Arrest of Convulsions by the Sinistro-lateral Posture.*—Dr. F. J. BROWN states (*The Practitioner*, April, 1876) that he has seen two cases of convulsions arrested almost instantly by turning the patient over on the left side, a procedure which he adopted from experience of its good effects both during chloroform inhalation and subsequently in the stage of recovery from the anæsthetic, as first employed by Mr. Bader.

Dr. Brown states that "a few months since a man suffering from Bright's disease was seized with uræmic convulsions in my presence. I turned him upon his left side and the convulsions ceased instantly.

"Recently a man, aged 56 years, in impaired health from chronic catarrh, was seized with unilateral (right) convulsions. His consciousness and power of speech were intact. He had been convulsed for ten minutes when I entered the house, and he was growing worse. I turned him over upon his left side, and the convulsions ceased in about ten or fifteen seconds. He had experienced a similar seizure on Dec. 9, 1875.

"I hasten to report these cases, for I am certain that marvellous results will be obtained in convulsive diseases (possibly even in epilepsy) by sinistro-lateral posture."

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22. *Chloral Enemata in Infantile Convulsions.*—Dr. POLAILLON stated at the Paris Medical Society that, encouraged by the benefit he had derived from chloral in puerperal convulsions, he had in two cases administered it with success to children as an enema (three grains in five drachms of water). Calm sleep and a cessation of the convulsions followed, and a similar enema given twenty-four hours later completed the cure. M. de St. Germain believed chloral an eminently useful remedy in convulsive diseases, and related a case in which he had given it by the mouth to a child fourteen years old, the subject of tetanus, in doses increasing from three to twelve grammes per diem, the patient recovering on the seventeenth day. M. Blondeau had, with Trousseau, kept a child ten years of age under the influence of chloroform for twelve hours with success. M. Lolliot also prefers chloroform, and had kept a child three months of age under its influence during twenty-four hours. M. Lunier, in a case in which bromide of potassium had been without effect, found that chloral arrested both the convulsions and the accompanying fever. He thinks that, carefully employed, it is preferable to chloroform, but that we must be cautious in giving large doses.—*Med. Times and Gaz.*, April 22, from *L'Union Méd.*, March 23.

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23. *Jaborandi in Pleuritic Effusions.*—On the strength of five cases, Dr. GRASSET, of Montpellier, comes to the following conclusions: 1. Jaborandi is very useful in the treatment of pleuritic effusions, whatever may be their date and the amount of the fluid. 2. It usually causes a rapid disappearance of the liquid, and the production of the pleural friction-sounds. 3. The effects of the jaborandi are of short duration, so that the liquid is often reproduced with great rapidity: it must then be persevered with, and usually the definitive dis-

appearance of the liquid will be obtained. 4. But when this disappearance has been attained, and the pleural friction-sounds appear, the jaborandi becomes entirely inefficacious. In order to complete the cure we should usually then have recourse to a tonic treatment, and sometimes to local applications—as, *e. g.*, to the tincture of iodine.—*Med. Times and Gaz.*, May 6, 1876, from *Journ. de Thérapeutique*, April 10.

24. *Injection of Quinine in Gonorrhœa.*—Radha Nauth Roy, Assist. Surg., extols (*Indian Med. Gazette*, May, 1876) the efficacy of injections of quinia in gonorrhœa. He states: "I was once tempted to try it in a case of acute gonorrhœa, where scalding was unbearable, and discharge profuse, and to my utter surprise after the third day, I found the man quite relieved. He described to me the soothing effect of the injection as something cold like ice. The discharge was so much diminished that his clothes were scarcely stained after the third day. There was no more incessant desire to void the bladder, and he was to all appearance comfortable. My success in this case made me bold enough to use it in other cases, and I have invariably found the disease yield both in its acute and chronic stage under its influence. It acts as a tonic and astringent to the mucous membrane of the urethra. I have also used it in some cases of cystitis with much benefit. I generally use it dissolved in sulphuric acid dil. mixed with rose-water. Two grains of quinine sulph. dissolved in acid. sulph. dil. ♏viij or ♏x, and mixed with an ounce of rose-water—to be used twice for injection. At the same time I give copaiba mixture to my patients. In almost all the cases I have found it act like a charm. The disease is generally cured within a week, but chronic cases take a longer time. In a few acute cases it took more than a fortnight, but the delay in them was attributable to their irregular habits during the treatment."

25. *The Kava as a Cure for Blenorrhagia.*—Dr. Dupouy, a physician in the French Navy, states that the kava (*Piper methysticum*, a plant of the family *Piperacea*, a native of Oceanica) is an energetic diuretic, and rapidly arrests the gonorrhœal discharge. Dr. D. made this discovery by accident. His ship having been wrecked, he was left without any medicine, and his patients with blenorrhagia could not be treated. The sailors having obtained some kava they mixed it with their water so as to obtain a more agreeable drink. Dr. D. after some days was struck with the great improvement of his venereal patients. The pains of micturition had ceased, the discharge diminished and soon ceased, and after from ten to twelve days the gonorrhœa was cured. The kava was afterwards administered in a great number of cases with equally good results. The kava was prepared, cutting in pieces four or five grammes or more of the dried root, and macerating it for five minutes in 1000 grammes of water. The water was then filtered and given in two doses before or after meals.—*Gaz. Hebdom.*, March 31, from *Journal de Thérapeutique*, 25 Feb. 1876.

26. *Tapping the Gall-bladder.*—Dr. E. L. Dixon relates (*The Practitioner*, April, 1876) a case in which the gall-bladder was tapped five times, not merely with impunity but with great relief to the patient, and a total of 87½ oz. of liquid withdrawn by the aspirator. The patient was jaundiced, her gall-bladder enormously distended, the common bile duct occluded by malignant deposit. The life of the patient seemed to have been protracted by the operation, but, as might have been expected, a fatal result was not prevented.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

27. *Behaviour of Carbolized Catgut inserted among Living Tissues.*—Mr. Wm. J. Fleming has instituted a number of experiments for the purpose of ascertaining what becomes of carbolized catgut introduced among living tissues.

After trying various experiments with unsatisfactory results he adopted the following plan: "Having then taken a piece of carefully prepared thick catgut, about six inches long, and attached the silk over about an inch and a half in the centre, I thread the gut into a sharp aneurism needle, push it well into the tissues, and bring the point out, say three inches, from the place of puncture. The gut is caught, the needle freed and withdrawn, and the part of the catgut bearing the silk being adjusted so as to occupy the middle of the track, the ends are cut short, and by putting the skin on the stretch they slip below it, thus making the whole piece subcutaneous. Of course the needle, surface of skin, etc., are previously rendered antiseptic.

"In this manner, then, I have performed about twenty experiments upon dogs and rabbits, latterly with the addition that I killed the animal by bleeding, and injected the abdominal aorta with two per cent. Brake's soluble Prussian blue. I then cut out the pieces of catgut with some of the tissue in which they were imbedded, hardened them in spirit, or froze them, and made sections in the usual way.

"The results of these experiments show that a gradual softening takes place from without in, the catgut breaking down and becoming infiltrated with cells, probably leucocytes. This part of the process takes from five days to about twenty, varying with the specimen of catgut, the tissue amongst which it is situated, and the age and vitality of the animal. Next the pultaceous mass into which it has been converted begins to metamorphose, and is soon permeated with blood channels, and ultimately may be described as a cast of the catgut, in a kind of granulation tissue freely supplied with bloodvessels, which in many of my sections are very fully injected.

"If, then, we admit these conclusions, we can easily account for the different results obtained by the use of catgut in different hands. We see that it is in reality merely a temporary ligature, because when in the softened stage we cannot consider it to have any constricting effect.

"Whether, then, this temporary condition lasts long enough to produce embolic occlusion of the vessels depends upon the sample of catgut and the vitality of the patient.

"In conclusion, my experiments seem to demonstrate that an aseptic, dead, foreign, animal body may under appropriate conditions become, by a process of softening, absorption, and re-deposition, changed into or replaced by a living, vascular, and comparatively highly organized, animal structure."—*Lancet*, May 27, 1876.

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28. *Treatment of Severe Sprains.*—Dr. SAMPSON GAMGEE, Surg. to Queen's Hospital, Birmingham, expresses his disapproval of the orthodox treatment of these injuries by leeches and fomentations, and recommends (*Lancet*, April 29) instead, circular compression and perfect immobilization. He related the following case as evidence of the efficacy of the latter mode of treatment. An elderly gentleman had recently sprained his right ankle in going over a ploughed field. As he had a policy in one of the accidental insurance companies, its medical officer saw the case, and he advised an incision to give vent to matter, which he thought had formed in the centre of the swelling. In this advice he was sustained by a hospital surgeon, who was additionally called in on behalf of the company. Mr. Clay, dissenting, invited my attendance. I found the right ankle hot and exquisitely painful. It was so much swollen that its circumference over the heel exceeded that of the corresponding sound joint by nearly an inch and a half. The skin on the outer side of the ankle was especially hot, red, tense, and shining; palpation in this situation communicated a feeling of elasticity closely simulating, but not amounting to, fluctuation. With Mr. Clay's concurrence and assistance I enveloped the limb from the toes to the knee in fine cotton-wool, applied well-moulded pasteboard splints on each side, bandaged with methodically uniform compression, and starched the outside. A second consultation was held in the course of three days, when I found the patient very much easier. He had had a good night's rest and had been able to turn over in bed, and could bear the limb lifted and put down again without pain. On opening the apparatus in front I found the swelling had

considerably decreased; the previously red skin was yellowish and shrivelled like the skin of a late russet apple, not looking, as at my first visit, like the red shining skin of a prime Blenheim. That shrivelled look is always a good sign. I pared the edges of the case, and readjusted with firm pressure. Three days later more shrinking was met by fresh paring, and still firmer bandaging. At a consultation held a fortnight after the first, the patient was perfectly easy. No one thought any more about puncturing in search of matter. The insurance company compromised the affair by paying down a substantial sum of money, and I replaced the pasteboard apparatus by strapping the joint with emplastrum elemi spread on leather, and a Churton's bandage applied with smooth firmness. When I last saw the patient with Mr. Clay, he was walking about his garden with a stick; the plaster had been very properly removed, and the swelling had subsided, the only difficulty to locomotion being stiffness of the joint. I cracked the adhesions by using the requisite amount of well-applied force, and we concurred in advising free use of the joint. In a note which I received from my colleague seven weeks after our first consultation, he wrote: "Our patient is progressing very satisfactorily; he comes to business every day, walks about a good deal, and does not require surgical supervision."

The case is a typical illustration of the proposition that severe sprains require immediate compression and absolute immobilization.

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29. *Treatment of Varicose Ulcers by the Tartrate of Iron and Potass.*—Dr. Bourguignon, having derived so much advantage from this substance in the treatment of phagedænic chancre, as recommended by Ricord, was induced to extend its application to chronic wounds in general, and especially to varicose ulcers of the leg with hard, well-defined edges and unhealthy surfaces. For the last ten years he has found these obstinate cases readily yield to this treatment, so as to become cured in two or three months. A solution of from two to six parts of the tartrate (according to the sensibility of the ulcer) is to be made in 100 of pure distilled water, a few drops of ammonia being added to prevent any precipitation. Pledgets of very fine charpie are to be soaked in it, and applied to the ulcer night and morning, and covered over with a thick layer of cerate, which must be so removed, with the aid of tepid water, as to leave none of the charpie sticking in the ulcer. After cicatrization has commenced, the lotion may be applied only in the evening, simple cerate being substituted in the morning. If the application is painful at first, opiate cerate may for a while be employed alternately.—*Med. Times and Gaz.*, April 22, from *L'Union Méd.*, March 30, 1876.

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30. *Boracic Acid as an Ordinary Dressing for Wounds.*—Dr. Leonard Cane extols (*Lancet*, May 20, 1876) boracic acid as a dressing for wounds. Its advantages, he states, are: "1st. It is an *antiseptic which does not irritate and inflame*, and so allows the natural processes of healing to go on without much interruption.

"2d. It is exceedingly *simple* in its application, and can be used apart from all the details required by a thoroughly antiseptic method.

"3d. It can be used in the shape of the lint, lotion, cotton-wool, etc., in combination with most other methods of treatment.

"4th. Its *cost is trifling;* and though this is of secondary importance, it is a feature of the treatment which will recommend its employment in workhouse infirmaries and in dispensary and parish practice."

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31. *Fractures of the Costal Cartilages.*—Dr. E. H. Bennett, Prof. Surg. in the Univ. Dublin, in an instructive paper on this subject (*Dublin Journ. Med. Sci.*, March, 1876), records six cases of this infrequent accident, which have come under his observation. He points out the circumstances under which these fractures take place, and gives the details of the microscopic examinations of the specimens he describes.

He draws the following conclusions from his study of the subject:—

1. That fractures of the costal cartilages may be arranged in three groups—the first containing recent fractures, which are consequences of grave injuries of

the chest, and mere results of fractures of the sternum or ribs; the second, united fractures caused by limited direct violence; the third, fractures the result of muscular action.

2. That the degeneration of the cartilages which precedes their ossification —the cleavage of the hyaline substance—may be regarded not only as a cause predisposing to fracture, but also as a cause determining its direction, which, in the great majority of cases, is transverse.

3. That oblique fractures are possible, chiefly as secondary injuries.

4. That the callus in these fractures is developed as in bone, the broken cartilage participating in its development.

5. That the difference between the modes of union in bone and cartilage fractures consists, in the case of overlapping fractures, in the more limited development of callus in the cartilage fractures, and, in all forms of fracture, in the slowness with which the process of union would appear to be completed.

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32. *Aneurism involving the Innominate, First Part of the Subclavian, as well as Part of the Arch of the Aorta.*—A patient of Mr. SPENCE, who had suffered from this trouble, was exhibited (April 5) to the Medico-Chirurgical Society of Edinburgh. Before anything in the way of operation was attempted, rest was tried, and half-drachm doses of iodide of potash were given four times a day. This treatment proved successful, so that there was new consolidation and absence of all pulsation.—*Ed. Med. Journ.*, May, 1876.

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33. *Results of the Cautery in the Treatment of the Pedicle in Ovariotomy.* —Dr. THOMAS KEITH states (*Lancet*, April 15, 1876) that he has now used the cautery fifty times (in 216 operations) in the division of the pedicle. The results show 92 per cent. of recoveries, and are the best he has had. "This," he says, "is not a large mortality. That it ought to be lower I am certain; and, while admitting that it may in this instance be partly accidental, the numbers are sufficient to prove that the method of dividing the pedicle by the actual cautery, as introduced by the late Mr. Baker Brown, is a good method, and one which has had scant justice done to it since his death.

"I hope soon to give all the cases in detail, so that each one interested in the matter may judge for himself as to the value of this way of dealing with the pedicle."

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34. *Ligature of the Subclavian Artery successfully performed in a Case of Wound of the Axillary Artery.*—Dr. CLAIDON communicated to the Surgical Society of Paris, March 8th, an interesting case of this. In the discussion which arose M. LE FORT maintained that in cases of wound of the axillary artery the ligature of the subclavian was preferable to ligature of the vessel in the wound. On a view of all the cases on record, M. Le Fort has come to the conclusion that the ligature of the axillary artery in the wound is almost invariably followed by gangrene of the limb, while ligature of the subclavian in a considerable number of cases results in a cure. He attributes the fatal results of the ligature of the axillary artery in the wound to the circumstance that it requires the surgeon to open the armpit, and, consequently, to divide the anastomosing arteries, and thus to compromise the collateral circulation, whence consecutive gangrene of the limb results.—*L'Union Médicale*, April 20, 1876.

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35. *Successful Disarticulation of the Shoulder for a Sub-periosteal Sarcoma of the Upper Extremity of the Humerus in a Pregnant Woman.*—M. NICAISE communicated to the Paris Surgical Society, 8th March, a report of a case of this operated on by him in the Municipal *Maison de Sante*, which excited great interest from the fact that the woman had arrived at the 8th month of pregnancy. The patient recovered, and thirty-six days after the operation, which was the normal term of gestation, she was safely delivered.—*L'Union, Médicale*, April 20, 1876.

36. *Gastrotomy for the Removal of a Fork.*—On the 30th of March, 1874, a man æt. 18 years imitating the feats of a juggler, allowed a fork which he was pretending to swallow, to pass deep into the pharynx. During attempts made to extract it, it slipped into the stomach. At first he suffered no pain, but after a fortnight he was seized with violent pains in the stomach, which ceased after twenty-four hours. From this time he alternated between complete ease and a moderate amount of suffering. In November, 1875, he consulted M. Labbé, who thought well of an operation, and M. Gosselin and Baron Larrey also sanctioned it. Caustics were employed as a preliminary, in the hope of producing adhesions extending from the exterior inwards, but when the operation was resorted to on April 9 (*i. e.*, rather more than two years after the accident), these were found entirely absent.—*Gaz. Hebdom.*, May 5, 1876.

Mr. L. made an incision of four centimetres, commencing from a centimetre on the inner side of the false ribs, and parallel with them, its inferior extremity falling on a transverse line passing through the cartilages of the two ninth ribs. In this way the anterior surface of the stomach was reached at the junction of its cardiac and pyloric portions. Forcipressure was employed to keep the wound clear of blood. On the stomach being exposed, before any incision was made into it, it was attached by eight points of suture, passed by highly curved needles, to the abdominal parietes at a distance of a centimetre from the circumference of the external wound. On the incision into the stomach being made, the fork was readily felt at several centimetres from the left extremity of the incision; and it was found that the extraction could not be easily made, inasmuch as the finger was grasped by the aperture of the stomach as by a vice. When, however, the mucous membrane had been everted and fixed along the whole circumference of the stomachal wound, all difficulty ceased, and the fork was seized by a long polypus-forceps with curved extremity, detached from amidst a mass of "fungous tissue" which surrounded it, and made to project through the wound. Some threatenings of peritonitis were averted by the application of collodion to the abdomen, and under the use of iced champagne the patient's strength soon became re-established. On the fifth day he began to take solid food, and gradually resumed his ordinary diet. All but two of the sutures have come away, and the aperture is reduced to a fistula that scarcely admits the little finger. In conclusion, M. Labbé remarks:—

"The successful termination of the operation seems to me to be due to several conditions. I attribute it to the operative procedure adopted, founded on very exact knowledge of the "landmarks;" to the precaution I took of fixing the stomach to the abdominal parietes before opening it; and to the consecutive treatment, especially the employment of so thick a layer of collodion as to render the walls of the abdomen and the digestive tube itself immovable, while submitting them to a very firm compression. By means of this compression the character of the respiration was very decidedly modified, the diaphragmatic having been converted into an upper costal respiration."

[A somewhat similar case occurred in this country seventy years ago, and was successfully operated on by Dr. Samuel White of the city of Hudson, N. Y., who published on account of it in the *Medical Repository*, vol. iv., Second Hexade, p. 367 *et seq.*

"The subject of the case was a man æt. 26 years, who on the 7th of July, 1806, procured," says Dr. White, "a full-sized teaspoon with some fruit and jelly, and, impracticable as it may appear, forced it down his throat, while his attendant was gone, by his request, to the opposite side of the room for water. His struggles were violent, and he apparently suffocating, when, by the force of his fingers against the handle of the spoon, he crowded it so far as to suffer it to pass into the stomach before his friends could be gained to give his attendant assistance.

"In this deplorable situation I was immediately requested to visit him. He was greatly agitated—talked much—believed he had gained his point, and declared that no attempt of ours could rescue him; which, at the time, I considered too true. The morning following he had some irregular sleep, continued through the 8th under a slight delirium, and complained of no uneasiness of the stomach. 9th. Continued the same until evening, when a spasmodic

affection of the stomach alternated every fifteen minutes with a stupor; throwing himself, as often as the spasm returned, with great violence from one side to the other, for about two hours (while the spoon probably passed the pylorus), when he suddenly fell asleep, and rested well through the night, extending the diseased leg, the flexor tendons of which had been greatly contracted, especially through the last complaint. He now became rational, his fever formed a perfect crisis; he recounted the past transaction with extreme sensibility, and expressed great anxiety for relief.

"On the 25th a cutting sensation, confirmed by pressure of the hand, when in a stooping position, led to a discovery of the situation of the spoon in one of the last circumvolutions of the *intestinum ilium*, near the line dividing the right iliac and hypogastric regions. It remained in this fixed position, with increased heat and irritation in the adjacent parts, till August 7th.

"Fearing that any further delay might endanger success, and he being resolutely determined to suffer everything for relief, accompanied by the consulting physician, I had recourse to an operation as the *dernier ressort*. I made an incision of about three inches, parallel with the epigastric artery, extending upwards to near a transverse line with the top of the *os ilium*—penetrating the inner edges of the obliquus externus descendens, internus ascendens, and transversalis abdominis—opened the peritoneum with a lancet, protruded the lower turn of the intestines containing the handle of the spoon, with my forefinger; pierced the intestine with the lancet over the end of the handle, and extracted it in the same direction with the forceps. I then laid the divided edges of the intestine directly opposite, and secured them with the glover's stitch—dressing the external wound with slips of adhesive plaster and lint.

"After this I made use of simple dressings to the wound; applied a liniment composed of camphorated oil, volatile spirits of ammonia, and laudanum, equal parts, to the diseased joint and limb, which became more painful and contracted while labouring under the irritation of the spoon. Under this treatment, his wound healed by the first intention."]

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37. *New Operation for the Obliteration of Depressed Cicatrices after Glandular Abscesses, or Exfoliation of Bone.*—Mr. WILLIAM ADAMS, surgeon to the Great Northern Hospital, etc., recommends (*British Med. Journ.*, April 29) for the removal or obliteration of deeply depressed cicatrices, such as result from glandular abscesses of the neck or from disease of bone in any region, a new operation, which consists: 1. In subcutaneously dividing all the deep adhesions of the cicatrix by a tenotomy knife, introduced a little beyond the margin of the cicatrix, and carried down to its base; 2. In carefully and thoroughly everting the depressed cicatrix—turning it, as it were, inside out, so that the cicatricial tissue remains prominently raised; 3. In passing two hare-lip pins, or finer needles, through the base, at right angles to each other, so as to maintain the cicatrix in its everted and raised form for three days; 4. In removing the needles on the third day, and allowing the cicatricial tissue—now somewhat swollen, succulent, and infiltrated—gradually to fall down to the proper level of the surrounding skin.

He relates three cases in which he resorted to this operation, and gives illustrations of the cases before and after the operation, which show considerable improvement in the appearance of the patient.

"After the operation," he says, "the cicatricial tissue always loses its shiny, membranous, and vascular characters; it becomes thickened, and of an opaque white colour. The thickening of the cicatricial tissue results from its succulent condition during the three days it remains elevated by the pins, and the inflammatory infiltration at its base.

"The permanency of the operation is placed beyond all doubt by the last two cases described—one nine and the other nearly three years since the operation; and the completeness of the obliteration of the depression and the improvement of the cicatricial tissue, has surpassed my most sanguine expectations."

38. *Cyst of the Kidney mistaken for an Ovarian Cyst; Extirpation of the Kidney; Recovery.*—The following case is recorded in the *Gaz. Méd.*, No. 6, 1876, from the *Giorn. Med. di Torino*, July, 1875: A widow, forty years old, entered the hospital November 15, 1873; she had had five children, the last three years before, and two abortions, one after her second child, the other after the fourth. Eighteen months ago she first noticed a tumefaction in the left iliac fossa. This tumefaction continued to increase, especially during the two months previous to admission. The patient was very feeble; her temperature normal, respiration easy; no albumen in urine. The tumour, movable in all directions, occupied the left iliac region and a portion of the hypogastric and right iliac regions; there was fluctuation at three points on the anterior surface of the tumour, uterus very high. Ovariotomy was performed December 2d. The cyst, having been evacuated by puncture, was found to be attached by its posterior surface. On examination of the abdominal cavity, the two ovaries were found to be normal and in their position, and the cyst to arise from the inferior extremity of the left kidney. It was decided to remove both the cyst and the kidney. The intestinal coils adhering to the posterior wall of the cyst were detached with the fingers, the left ureter and the vessels were tied, and the kidney and cyst were extirpated entire. No hemorrhage, properly speaking, but much oozing. Operation concluded as usual. The cyst was formed by the inferior quarter of the kidney, which was otherwise healthy. On April 7, 1874, the patient had recovered almost completely; urine was always secreted in abundance, and never contained albumen.—*New York Med. Journ.*, June, 1875.

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39. *Complete Extirpation of the Larynx.*—Another case in which the larynx was completely removed by operation is reported by Prof. Maas, of Breslau (*Langenbeck's Archiv*, xix. 3, 1876). The first signs of trouble in the larynx showed themselves at the end of September, 1873. By the middle of the following April, the patient, a man of 57, suffered so much from the stricture of the larynx caused by the large and growing tumour, that tracheotomy was performed by Dr. O. Riegner. By the first of June, however, the tumour came to press so much upon the œsophagus that it was impossible for the patient to swallow the smallest portion of fluid. The operation of extirpation of the larynx was therefore performed by Prof. Maas, who found great advantage in adapting a modification of Rose's position, with the head hanging backwards. After the operation the patient found the frequent introduction of the œsophageal tube so painful that Prof. M., on the third day, passed an India-rubber tube through the wound, down nearly to the cardiac end of the œsophagus, and left it in that position. Through this the nutrition of the patient was satisfactorily carried on. On the ninth day he was able to leave his bed; on the eleventh an unsuccessful attempt was made to introduce an artificial larynx; on the twelfth the bronchitis, from which he had suffered since the tracheotomy, became seriously worse, and on the fourteenth day he died of pneumonia. The microscope determined that the tumour which involved the whole larynx was adeno-fibroma carcinomatosum.—*Med. Record*, April 22, 1876.

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40. *Resection of the Larynx.*—Prof. C. Heine, of Prague (*Langenbeck's Archiv*, xix. 3, 1876), reports a case which he diagnosticated as concentric hyperchondrosis of the larynx, and which resulted in almost complete obliteration of the cavity of that organ. Tracheotomy had been performed, with temporary relief, also a subsequent dilatation of fistula; but the case became so urgent that, on December 18, 1874, Prof. H. performed an operation which he designates as resection of the larynx. It consisted in splitting the thyroid cartilage in the median line, and then making a sub-perichondrial dissection of the anterior halves of the two sides, and removing them with forceps. The operation was so far successful that the patient regained the power of speaking intelligibly, and of swallowing liquids and solids. Subsequently, however, his condition deteriorated, and he succumbed to tuberculosis on November 2, 1875. At the autopsy, syphilis, which had been suspected, but denied, was proved to have been at the root at the laryngeal disease.—*Med. Record*, April 22, 1876.

OPHTHALMOLGY.

41. *Atropia Poisoning from the Application of a Solution to the Eye.*—Dr. NETTLESHIP records (*Brit. Med. Journ.*, April 8, 1876) the following case of this, which should be a caution against the too free use of this article as is so common among German ophthalmic surgeons.

"Mrs. Sarah S., æt. 44, came to me at the South London Ophthalmic Hospital, on January 29th, for an attack of iritis in the right eye. The attack was a mild one, of only a few days' duration, and I was unable to come to a positive conclusion as to its cause; I, therefore, ordered simply strong atropine drops (sulphate of atropine, four grains to one ounce), to be used several times a day. This was repeated at her next visit, February 2d. She then did not come again till the 12th, when she excused her absence by saying that she had been ill with a bad 'bilious attack.' On further inquiry, it transpired that the chief symptoms of this 'bilious attack' had been dryness of the mouth and throat, a sour taste in the mouth, dryness and burning in the stomach, repeated vomiting, and partial delirium. These symptoms had not entirely passed off, and she still had the dryness of the mouth and sense of burning at the stomach. The drops had lasted since the former visit, she had been using them all the time, and the pupil of the inflamed eye had become widely dilated. There was no dilatation of the other pupil, nor any failure of accommodation more than her age would account for in it. The atropine was discontinued; and her disagreeable symptoms subsided in a few days.

"Of the group of symptoms described by this patient, it may be noted that some were those commonly mentioned as most characteristic of atropine poisoning, viz., the dryness of mouth and throat and the cerebral disturbance; the dryness she described as passing 'down to the stomach,' and she said that the region of the stomach 'felt as if she had a mustard plaster on it,' and the cerebral disturbance she specified as 'light-headedness,' 'so that she could hardly keep herself from going silly.' The nausea and vomiting appear also to occur in some cases, but less constantly, while the sour taste is not mentioned as a usual accompaniment. The patient, however, several times mentioned it; and, as the solution of sulphate of atropine has a faintly sour and bitter taste, which is sometimes distinctly perceptible after a drop has been applied to the eye, her description was probably correct.

"She was a rather thin, tall woman, of exceedingly restless, excitable temperament, usually rather pale, but easily flushing up. She had a peculiar habit of twitching one side of her face strongly whilst talking, especially when excited, and she always seemed to have a difficulty in keeping her limbs still even for a few moments. She was an intelligent woman, apparently in tolerable health, but had had syphilis many years before, and was the subject of an unusual kind of cortical cataract, the opacities being in the form of little blunt streaks or dots and small patches. She had not the slightest suspicion that the symptoms were caused by the eye-drops, and had taken a blue-pill and draught for the supposed liver-disorder."

MIDWIFERY AND GYNÆCOLOGY.

42. *Pregnancy with Unruptured Hymen.*—Prof. GUSTAV BRAUN relates three cases of this occurrence. The first was that of a woman, aged twenty-six, who was admitted into the obstetric wards in the first stage of labour. On examination, the vagina was found to be closed by a thick hymen, which was perforated only by an opening which would just admit the uterine sound, situated immediately beneath the entrance of the urethra. The urethra itself was considerably dilated, and the forefinger could be easily passed through it into the bladder. Its orifice was prominent and surrounded by thick lips. The history of the patient was that at the age of eighteen she first suffered from

hypogastric pains, which subsided after three or four days without the appearance of any menstrual discharge. Similar pains recurred at several successive monthly intervals, and then she noticed a globular projection at the vulva, which one day suddenly gave way and emptied itself under the influence of a violent pain. From that time menstruation took place naturally. It would therefore appear that there had been retention of menses in consequence of a congenitally imperforate hymen, which had ruptured spontaneously by a small opening. The patient had been subject to sexual relations for the last two years, and from her account it was ascertained that the urethra had always been used in sexual congress. The author concludes that the seminal fluid must have found its way to the surface of the hymen, and the spermatozoa have entered through the small opening. The hymen was ruptured by forcing the finger through the small opening which existed, and labour was completed naturally.

The second case was that of a girl, aged fifteen, who was brought to Professor Braun's consulting room on account of a supposed abdominal tumour. The menses were said to have ceased for several months. On examination of the abdomen, the existence of pregnancy of fully eight months was ascertained, but the vagina was found to be closed by a hymen having an opening only large enough to admit a goosequill. The inner edge of the membrane was quite intact, but by steady pressure the forefinger could be introduced into the opening, without producing any bleeding, to a distance of 6 c. m. (2.3 inches). When the finger was withdrawn, the aperture closed up again to its former small size as if the membrane had been of India-rubber. Professor Braun afterwards enjoyed the opportunity of examining and questioning the man as well as the woman. He convinced himself that impregnation had occurred by the penetration, or partial penetration, of a relatively small penis, during a return in a carriage from a ball, and that no trace whatever had been left in the vagina of what had occurred.

The third case was that of a girl, aged about sixteen, who came under observation under similar circumstances, and was found to have arrived nearly at the full term of pregnancy. The vulva, however, was found to be completely virginal, and the vagina closed by a hymen having only a narrow aperture. In this case, also Professor Braun had the opportunity of questioning both parties, and learnt that the seminal fluid could only have been emitted externally to the vulva.—*Obstetrical Journ. of Great Britain and Ireland*, May, 1876, from *Wiener Medicin. Wochens.*, No. xiv. 1876.

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43. *Chloral in the Pains of Parturition.*—Dr. Polaillon stated, at the Paris Medical Society, that he had made trial of chloral in eighteen obstetrical cases, administering it as an enema in doses of thirty or forty-five grains dissolved in half an ounce of water or milk. According to the effect produced, or whether the whole was retained or not, a second enema was given at the end of an hour, and sometimes even a third. The quantity of chloral thus given varied from thirty to 120 grains; but the mean amount really absorbed did not exceed, on account of the rejection of a portion of the enemata, sixty or seventy-five grains. In all the cases it was given during the later hours of the period of dilatation, or during the expulsive period, and was habitually well borne. In some of the women the contractions were obviously less painful, without diminution of their frequency or energy, the labour terminating in the usual time; but in a somewhat larger number the uterine action was arrested, as well as the pains, the presentation remaining in the pelvis or at the vulva, so that in five cases out of the eighteen delivery had to be terminated with the forceps. In M. Poluillon's opinion, while chloral may be employed with advantage for assuaging excessive excitability of the uterus, or for the relief of pains produced by too violent contractions, it ought to be rejected in normal accouchements.—*Med. Times and Gaz.*, April 22, from *L'Union Méd.*, April 15, 1876.

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44. *Complicated Labour, in which Collapse from Post-partum Hemorrhage was treated successfully by the Subcutaneous Injection of Ether.*—Dr. A. V. Macan communicated to the Dublin Obstetrical Society a very instructive case

of this. The history of the case as communicated to him by Mr. Kilbride, one of the interne pupils of the Rotunda Hospital, was as follows: "Mary E., æt. 33, eleventh pregnancy. Has had four children at the full time, followed by four miscarriages, which caused her to seek medical advice. As well as could be gathered from her account, she was suffering from ulceration of the os. Six months after she was cured she again became pregnant, and the child, which she carried to the full time, is now about two years old.

"She enjoyed good health during the present pregnancy till within nine weeks of her full time, when she began to complain of a gnawing pain in the lumbar and hypochondriac regions. This was accompanied with great irritability of stomach, and a marked decrease in the amount of urine secreted—the abdomen being very much larger than in any of her former pregnancies.

"Her labour commenced on December 1st, about 7 P. M., the first stage being very long and tedious, the uterus being greatly over-distended by hydrops amnii. At noon on the 2d, the os being nearly fully dilated and the labour almost at a stand-still, the membranes were ruptured by Mr. Kilbride, and two gallons or more of liquor amnii allowed to escape. This gave great relief, though at first she felt a little faint. The uterus, however, remained in a state of complete inertia from that time until 8 o'clock P. M., though all the ordinary means, such as change of position, walking about, and a stimulating enema, were used to excite it to contract. It was on account of the uterine inertia that I was requested to see her, no serious difficulty being anticipated from the unusual presentation. However, when I arrived at about 8 o'clock she was up and walking about, being very cheery about herself, for the bearing-down pains had just commenced, and she said she was never very long once they had set in in earnest.

"On making a vaginal examination, the first parts that met the finger were the eyelids, which seemed unusually swollen. This did not astonish me much, as it was now eight hours since the membranes had been ruptured. On passing the finger backwards and towards the right side, I was able to recognize a very small nose, but I could not make out either the mouth or chin. I thought, therefore, it must be a case of brow presentation; but on passing the finger forwards and to the left in search of the anterior fontanelle, my finger came on a pulpy mass, which I at the time took for the caput succedaneum. On passing the finger between this and the pubes I almost at once came on an ear, which felt flatter and thicker than usual. Just behind the ear was a large bony projection, which felt like an elbow; and on passing the finger still further towards the left acetabulum, I felt the fœtus give a most violent kick. This movement of the fœtus was so marked that it had been noticed by almost every gentleman who examined the case. On passing the finger further round the presentation, it almost at once encountered the other ear, which was also thicker and flatter than usual. I now endeavoured to pass my fingers up at the sides, but they impinged against an irregular mass, the several component parts of which I could not recognize. The above peculiarities were so well marked that I was at once able to say I had never felt anything similar before; but it was not till after some thought I came to the conclusion that the face of an anencephalous fœtus was presenting. This idea, when once entertained, was strengthened by the fact of there having been hydrops amnii, which showed that the ovum was to a certain extent unhealthy.

"As the question of diagnosis would be very important, if from any cause we were called upon to deliver artificially, it may be well briefly to recapitulate the points on which it was principally founded. The most striking of all was the peculiar feel of the mastoid processes; next to this came the shape of the ears and the short distance between them; and lastly, the violent movements of the fœtus when the finger was passed from one mastoid process to the other, which was caused by irritation of the exposed portion of the medulla oblongata. By this symptom alone Tarnier has been able to diagnose the deformity even before the rupture of the membranes. If to these be added the hydrops amnii, a condition usually accompanying this deformity, no doubt can remain as to the nature of the case.

"In the present instance, as there was no indication for immediate delivery,

and as uterine action was getting stronger, I left the case in charge of Mr. Kilbride, giving directions to be sent for in two hours if the labour had not made good progress. At 11 o'clock P.M. a messenger arrived to say that the child had been born at about half-past ten, and that its birth had been followed by uterine inertia, with its usual concomitants—*post-partum* hemorrhage and retained placenta. On my arrival at 11.20 P.M. I found the women with all the symptoms of severe *post-partum* hemorrhage, her pulse being 140, and scarcely perceptible. On making inquiries I was told that a large quantity of blood—more than a pint—had escaped immediately after the birth of the child, and that since that time, which was about an hour, large clots had been expelled at intervals, though every means had been used to excite contraction.

"On placing my hand over the abdomen I found the uterus large, soft, and flabby, and reaching fully to the umbilicus. On making firm pressure over the fundus some clots were expelled, but the placenta did not move in the least. Taking all the circumstances of the case into consideration, I thought it would be best to remove the placenta at once—an operation which, in the relaxed condition of the parts, did not seem likely to prove difficult. Two or three times, however, I thought my hand in the uterus had reached the fundus, and attempted to withdraw the placenta, only to find that it was still caught higher up. This, I think, was owing to the counter-pressure exerted by the left hand over the uterus causing partial inversion of the relaxed and flabby walls. Once also I heard air plainly pass into the vagina as the arm was partially withdrawn. As soon as the hand in the uterus had really reached the fundus, there was no difficulty in removing the placenta; and so little blood escaped after its removal that I thought it unnecessary to inject the perchloride of iron which was ready at hand. The uterus, however, was still very large, and on making firm pressure over the abdomen, air was plainly heard escaping from the vulva; and on making a vaginal examination, it seemed to me as if there was actually an empty space or hollow within the uterus. During all this time brandy had been freely administered, and when the woman was bound, I gave her a draught containing 45 minims of tincture of opium, and a drachm of chloric ether, in an ounce of brandy. This she swallowed with difficulty, and her state was so critical that I determined to try the effect of the subcutaneous injection of ether. Unfortunately I had no ether with me, and when I returned with it in about half an hour, the woman's condition had become very much worse. She was then quite insensible, deadly pale, and pulseless, with fixed eyes, dilated pupils, clammy face and extremities, and short and superficial respiration. On examining the vulva, I found there was a thin streak of blood flowing over the thigh, and as it was obvious that if the smallest quantity more of blood were lost the patient must die, I determined to combine the injection of the perchloride of iron into the uterus with the subcutaneous injection of ether. Having, therefore, grasped a fold of the skin covering the abdomen, I injected two syringefuls, or about ʒss, of ether well into the subcutaneous cellular tissue, and then injected about six ounces of the usual solution of iron into the uterus. Before I had finished injecting the iron the pulse returned at the wrist, and, emboldened by this, I injected a third syringeful of ether close to the former one. The effect produced was most marked, the woman soon turning of her own accord over on her side, and declaring, when asked how she was, that she felt much better. The change was so sudden and so great that every one in the room was satisfied it was produced by the ether. Shortly afterwards the woman vomited, and though reaction was a long time before it was established, the woman improved so much that I felt justified in again leaving the woman in charge of Mr. Kilbride, whom I have to thank for his great care and attention of the case throughout.

"I need not trouble you with the history of the woman's convalescence, which went on uninterruptedly. She was carefully syringed every day with Condy's solution and warm water, until the discharge, which was at first very offensive, became natural; and on the twelfth day she was able to sit up, though still very weak and anæmic.

"With regard to the subcutaneous injection of ether," Dr. M. remarks, "there are one or two things which require further explanation. The first is the quantity to be used. This depends entirely on the patient's pulse. Professor

Hecker frequently injects fifteen syringefuls (about ʒiv) from three to five at a time, at short intervals. The injection may require to be repeated, as the effect is very transitory. The part most suitable is the loose abdominal walls, but the gluteal region is easier got at if the woman has on a binder. The only thing to be attended to in making the injection is to pass the syringe deep enough; if you fail to do this, you will probably have troublesome abscess. Professor V. Hecker has never seen an abscess formed at the seat of the injection. The injection itself is rather painful, but this is of little moment if his statement be true, that it will in many cases render transfusion unnecessary; even if not quite so efficacious, it is at all events free from danger, and can be carried out without any assistance or complicated apparatus. Its use need not at all be confined to cases of *post-partum* hemorrhage. I have myself since used it in accidental hemorrhage, where it enabled me to deliver at once, though the patient had been pulseless for more than an hour. I have also used it in puerperal fever, but without permanent benefit, though the pulse, which could not be felt before the injection, returned almost immediately; also in a case of rupture of the uterus, where, I think, it prolonged life. You yourself, Mr. President, have, I think, used it successfully in a case of placenta prævia."—*Dublin Journ. of Med. Science*, May, 1876.

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45. *On the Complete Evacuation of the Uterus after Abortion.*—Prof. ALEX. R. SIMPSON, in a paper published in the *Edinburgh Medical Journal* for May last, points out the evil effects of incomplete abortions, and the importance of completely evacuating the uterus. "The evil effects of incomplete abortion," he says, "are either immediate or remote. The great immediate risk is the occurrence of excessive hemorrhage, which, though but rarely fatal, is sometimes very alarming, and always leaves the patient in a state of deteriorated health. Then, apart from the chances of decomposition of the retained fragments, or of the discharges that attend it, and the possibility of septic absorption from the surface where separation may be taking place, the uterus which contains a foreign body remains decidedly hypertrophied, so that, when it finally becomes evacuated, the walls may remain permanently thickened and the cavity enlarged. In a patient with the uterus in such a condition, dislocations of the organ easily occur. Such imperfect involution may easily be the starting-point of other morbid changes; and thus it comes about that many of the women who come under observation suffering from uterine affections can trace back the commencement of their distress to an abortion in the early months of gestation.

"When we have to do with a case of abortion in which the stage of expectancy is clearly over, and the patency of the os internum, or the persistence of the pains, or the hemorrhage long continued or profusely flowing, call for active interference, there are two main indications to be fulfilled, viz., 1st, to restrain the hemorrhage, and, 2d, to procure the perfect removal of the ovum."

To accomplish the former he says: "1st. The uterus must be compelled to steady action by the administration of ergot, introduced in the form of a strong solution of ergotin[1] into the subcutaneous cellular tissue—a mode of administration of the drug which is destined, I believe, to supersede those with which we have so long been familiar; for the subcutaneous injection of ergotin sets up the uterine contractions with such speed, such certainty, and such safety, that the hypodermic syringe will be found an indispensable part of the furnishing of every obstetric bag.

"2d. Pending the onset of effective pains, and with the view of at once hastening them and preventing the escape of the blood, we plug the genital canal. For the most part, and as if it were the best in all cases, authors recommend the use of the vaginal tampon. Now, the plugging of the vagina,

[1] I use for hypodermic injection a solution of one part of ergotin in three of water, with ten or twelve grains of chloral in each half ounce bottle of the mixture. Ten drops of this fluid give the action of the drug with great certainty, and I have seen no ill effects from it.

by whatever material, is sometimes the only expedient to which we can have recourse, and we may rely on it with much certainty for averting the immediate danger of excessive hemorrhage. But it seems to me that, where we have our choice, its application ought to be restricted to those cases where there is still some hope that, if we succeed in arresting the hemorrhage, we shall at the same time succeed in averting the impending abortion. Otherwise we have a means of controlling the bleeding more directly, at once less irksome to the patient, and less troublesome of application by the practitioner, in the cervical plug. For this purpose there is nothing so efficient as a good-sized sponge-tent, prepared by being dipped in a disinfectant solution before being compressed by the whipcord. In my judgment, nothing can take the place of the sponge-tent for rapid, kindly, and complete dilatation of the cervical canal."

For the complete evacuation of the uterus, he says: "We have to pass one or more fingers into the cavity of the uterus to explore the entire cavity, to separate from its walls any adherent portion of the ovum, and then to extract the separated mass. I say at once, and simply, that it is the fingers of the operator that are to do the intra-uterine work, for I am quite at one with those who deprecate the use of instruments, such as curettes, wire-loops, crotchets, and abortion forceps, for the *detachment* of retained ova or their fragments. When the adhesions have been all separated by the finger, it may sometimes facilitate the removal of the loosened body to seize it with such instruments, and in that case, a pair of long dressing forceps, or polypus forceps, suits as well as any special implement; but the detaching of the adherent portions of the placenta should in no case be entrusted to these, or attempted with them, seeing that it can always be effected by the use of the sense-guided finger.

"But how are we, with the finger or fingers, to reach so high in the cavity of the uterus as completely to surround the ovum? To begin with, the patient should, as a rule, be anæsthetized. The manipulations necessary to secure a satisfactory result cause suffering, though not to a great degree, which we can always save the patient by bringing her under the influence of chloroform. And at the same time that her sense of pain is abolished, her voluntary muscles are completely relaxed, and it becomes easy for the practitioner to press down the uterus through the abdominal parietes. Once and again I have found myself baffled in the effort to reach the fundus uteri in such a patient until I had chloroformed her; for, however willing the woman may be to further your efforts for her delivery, involuntarily she contracts the recti abdominis when you make pressure on the hypogastrium, or withdraws herself when you press the other hand against the perineum. The patient, then, having been anæsthetized, we may render the uterine cavity accessible to the exploring finger in one or other of two different ways.

"1st. We can push down the fundus uteri from above. The patient may lie either supine or in the ordinary obstetric position on her left side, with the knees drawn up; most frequently the right hand will be used for internal manipulation, while the left is applied to the abdominal surface. It rarely suffices to pass one finger alone into the vagina. In most cases the index and middle fingers are passed into the vagina, and while the middle finger is folded in the fornix to steady the uterus there, the forefinger is passed through the cervix. Or the middle finger can sometimes be more satisfactorily employed for the intra-uterine digitation, or, better still, both fingers may be passed into the uterine cavity. In the last case it may be necessary to have the other two fingers carried into the canal of the vagina, the thumb alone remaining external to the vulva. It is usually only in patients who have miscarried at the fourth month, or beyond it, that the hand requires to enter so far for the separation of the placenta, and then the vaginal cavity is relaxed and roomy enough easily to permit of it. Whilst the fingers of the right hand are thus seeking their way up to the recesses of the uterus, the left hand, applied above the brim of the pelvis, is pressing the uterus forcibly and steadily downwards into the pelvic cavity. In this way, in the great proportion of cases, we obtain perfect command of the uterine contents. The fingers of the two hands recognize each other through the double thickness of the abdominal and uterine parietes; and while the left hand keeps the fundus fixed firmly downwards, the forefinger of

the right peels off the adherent mass and forces it through the cervical canal. In the great proportion of cases, I repeat, we can in this manner compel the evacuation of the uterus, and when it fails us our resources are not yet at an end, for,

"2d. We can drag down the cervix from below. The first is the method that has most frequently been employed, and it has this in favor of its common employment, that abortions are more frequent in multigravid than in primigravid women; in women, therefore, in whom there is usually a degree of abdominal relaxation, which greatly favors its execution. But where the walls are more resistant, or the patient is so fat that the combined external and internal manipulation fail us, then we must seize one or other of the lips of the uterus—usually the anterior—with a volsellum, double or triple pronged, and slightly curved. One of the blades grasps the vaginal aspect of the front wall of the cervix as high up as the roof of the vagina, the other at a corresponding level within the cervical canal. The uterus is capable of being dragged far down without any injury to its ligaments or laceration in the bite of the volsellum. It may be pulled down with the right hand and kept fixed with it, whilst the fingers of the left pass into the cavity and explore and evacuate it. Or the volsellum may be held in the left hand, or given to an assistant, to keep the uterus depressed, whilst the more familiar right-hand fingers do the intra-uterine work. The cavity of the uterus is thus brought within full reach of the fingers, and we can—and in all those cases of imperfect delivery in the early months we ought to—control the emptying of the cavity from fundus to os.

"Whilst the method of gaining access to the interior of the uterus by pressing it down from above is that which has hitherto been ordinarily followed, my own experience leads me to expect that this second method, which I have just described, will largely supersede it. For, first, it is applicable in all cases where the other can be employed, and in some where the rival method is not available. Second, it is less painful, and may be carried out occasionally when there is not time for the administration of an anæsthetic. Third, it saves the expenditure of muscular power demanded of the practitioner, who presses and keeps the uterus pressed down from above only by overcoming the resistance of the abdominal walls. The one circumstance that will enable the bi-manual method to hold its ground is, that we may find ourselves called on to clear out the uterus at a time when we have no volsellum at command, whilst our hands we always carry about us."

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46. *Rupture of the Perineum.*—The following remarkable case of this, in which for several days after parturition there were the appearances of an ordinary severe laceration, not involving the sphincter ani; and subsequently without any discoverable additional cause there was complete division of the perineum, sphincter, and lower part of the recto-vaginal septum, is related by Dr. MATTHEWS DUNCAN (*Edin. Med. Journ.*, April, 1870).

"R. C., æt. 28, primipara, is an ill-made woman, of about 4 feet 11 inches in height. She has a contracted rickety pelvis, with projecting sacrum and otherwise reniform brim, whose conjugate is scarcely 2½ inches. She had been about thirty-six hours in labour when delivery was completed. The waters had been discharged about a day before labour began. After thirty-one hours of regular pains, the os uteri was very high, and not larger than easily to admit the finger, though quite soft, and the head was still high above the brim. The cervix was dilated by India-rubber bags for about four hours, and then delivery was effected by version and podalic extraction, the head being perforated when its base was brought to the brim of the pelvis. No difficulty was experienced in completing delivery after the base of the skull had passed the brim. The perineum was lacerated, but as there was nothing apparently peculiar about the accident, the part was not particularly examined at this time. The child weighed 6 lbs. 10 oz.

"*Oct.* 9. The day following delivery. Pulse 96, temp. 99°. Complains of severe pain in the region of the external genitals. The perineum found to be ruptured. A linear fissure of the skin only extended to the verge of the anus,

whose sphincter was found to be entire by passing the finger through it. This fissure through the skin (or split skin) was half an inch in extent. The depth of this linear fissure is very little, probably not through the corium, for it is not increased by separating the labia and adjacent parts. When the labia were separated, the vaginal structures were seen to be entire for at least one-quarter of an inch further forwards than the entire part of perineum, including the split skin. The wound is healthy, but around it and in the labia there is redness, such as is seen over diffuse cellular inflammation. The urine has to be drawn off; reaction acid; is albuminous.

"10*th*. Slight jaundice and vomiting. Pulse 96, temp. 98.8°. Bowels moved by medicine. Urine has to be drawn off. State of perineum as before.

"11*th*. Pulse 92, temp. 98°. Urine has to be drawn off; lithates copious; no albumen. Perineum less inflamed.

"12*th*. Jaundice diminishing. No vomiting. Pulse 92, temp. 97.8°. Urine has to be drawn off. Perineum has lost its swelling and diffused redness. Cutaneous fissure appears to be as before.

"13*th*. Is comfortable to-day. Pulse 84, temp. 99°. Urine has to be drawn off. Perineum not examined.

"14*th*. Pulse 92, temp. 100.6°. Urine has to be drawn off. Perineum not examined.

"15*th*. Pulse 88, temp. 98.8°. Urine has to be drawn off. Perineal laceration as before. Wound granulating. Anus found entire.

"16*th*. Pulse 100, temp. 102.5°. Bowels acted upon. Three motions. Urine spontaneously discharged. Perineum not examined.

"17*th*. Pulse 100, temp. 101.8°. Urine has to be drawn off, and continued to be so till the 24th. Perineum not examined. She complains of pain in the external genitals.

"18*th*. Pulse 96, temp. 100.5°. Perineum not examined.

"19*th*. Pulse 96, temp. 101.4°. Slight attack of phlegmasia dolens in left leg. Perineum not examined.

"20*th*. Pulse 88, temp. 99°. Perineum examined, and found to be completely divided in its whole length, the fissure extending through the sphincter ani for an inch above the verge of the anus. The newly observed wound was clean, but small portions of soft slough were observed about it. It must be remarked that the part had not been examined by me for five days, and was regularly washed by the nurse in attendance. Except this great fissure no appearances of disease were observed.

"When she left the hospital the appearances were as before, closely resembling those found after an ordinary laceration of the same extent produced primarily, by over-distension during the birth of the fœtal head.

"The further history of the case presents nothing of special interest. The patient was dismissed from the hospital on the 30th October in a convalescent condition, and with advice to undergo an operation for restoration of the perineum after some time had elapsed."

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47. *Rupture of the Uterus.*—Dr. Bandl gives his conclusions relative to this accident founded upon thirty-two cases, thirteen of these observed by himself and nineteen taken from the records of the Vienna lying-in hospital. He has not found in one single case that pathological change in the substance of the uterus, which has so generally been assigned as a predisposing cause, more especially in multiparæ. The uterus was always thick, well contracted, high up, and the cervix very thin. The fissure was nearly always found in the cervix, and even when the body of the uterus was torn it began there. The peritoneum was never separated from the fundus, only in the lower parts. Bandl believes the rupture is always due to disproportion; in the thirty-two cases there were nineteen of narrow pelvis, three of hydrocephalus, eight of shoulder presentation, one prolapse of the foot with the head, and one case unexplainable. Pressure does not produce rupture, as frequently sloughing occurred without rupture in one case both were present though at different points. An unyielding os uteri, rudimentary or double development, fibroid tumours are often stated as

causes, but this is not proved. Bandl agrees with Chiari, Braun, and Spaeth, in considering that the abnormality is due to an excessive thinning of the cervix occurring during labour; he has found by measurement that the walls of the uterus in multiparæ, especially when there has been disproportion in previous labours, were much developed. In normal circumstances, the cervix is drawn back over the head of the child by the muscular uterus; the orificium internum remaining, as investigation on the living and dissection on the dead subject show, about the level of the brim of the pelvis. If there is a disproportion which does not allow the presenting part to descend into the pelvis, the cervix is abnormally stretched, the internal orifice is raised a hand's breadth above the brim, and so rupture becomes possible. If this abnormal condition has once existed, it takes place more easily in future labours, which is the reason why ruptures take place more easily in multiparæ. Bandl believes that rupture can be recognized as threatening when the internal orifice gradually ascends, whilst the cervix stretches and the fundus acquires a lateral position.—*Brit. and For. Med.-Chir. Rev.*, April, 1876, from *Centralblatt*, No. 33, 1875.

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48. *Iodoform in Vaginismus and Fissure of the Anus.*—MONS. TARNIER mentions an instance of a young woman, aged thirty-two, who had been married seventeen years, and was affected with an extreme hyperæsthesia of the vulva, causing extreme torture when coitus was attempted, there being also pain on walking, where iodoform dusted over the vulval outlet produced insensibility of the parts within a few hours, and relieved completely the distressing symptoms. He also employed it in a most intolerable fissure of the anus, which had resisted all the narcotic and astringent remedies usually employed in such cases. After a single application the pain diminished considerably, and a cure was effected in a few days.—*Obstetrical Journ. of Great Britain and Ireland*, May, 1876, from *Journ. de Méd. et de Chirurg. Pratique.*

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49. *Abdominal Abscess mistaken for an Ovarian Cyst.*—The following instructive case of this is related in the *Glasgow Med. Journ.*, April, 1876. A woman æt. 58 was transferred to Dr. E. Watson's ward in the Royal Infirmary as a case for ovariotomy. The consultation agreed that the physical signs of an ovarian cystic growth were present. On 7th March, 1875, when the operation was commenced by cutting into the mesian line through the abdominal wall, a large quantity (about six quarts) of thick pus escaped. When the finger was introduced through the wound, it passed into a cavity, in the lower part of which the organs of the pelvis were felt covered with flocculent lymph, and above, the wall of the abscess formed a complete partition between its cavity and the intestines. No hair, or other foreign substance, was found in the pus. The abscess was thoroughly evacuated, and the wound dressed antiseptically. A drainage tube was kept in for a time, and the discharge gradually diminished. The patient made an uninterrupted recovery, and was dismissed from the Hospital on 6th May. The opening then was still unclosed, though much reduced in size, and there was almost no discharge from it. The woman has since called at the Hospital, and remains in excellent health. The wound may be said to be now closed.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of Ovariotomy; Polycystic Ovarian Tumour; Extensive Adhesions, both Parietal and Visceral; No previous Tapping; Incision eleven inches in length; Recovery. By JAMES P. ORR, M.D., of Andersonville, Franklin County, Indiana.

Patient an American, married, aged 20 years; mother of two children, youngest child eight months old. Tumour first observed two years ago. Did not notice it especially until after delivery of last child, eight months before operation. Was treated by different physicians for ascites, and perhaps a dozen other suspected maladies. Menstruation began at the age of fourteen; was regular until first pregnancy occurred, at age of sixteen. Menses did not recur between pregnancies. The abdominal enlargement was marked after birth of last child, and at the time of first examination, six months after last delivery, she was as large as usual at full term. The enlargement increased rapidly, and on November 9, 1875, the tumour was removed. Squibb's ether, preceded by chloroform, was administered, and, partly on account of the universal and inveterate adhesions, and partly because of the imperfect anæsthesia, the operation occupied nearly three hours. The tumour consisted of the left ovary, and weighed thirty-two pounds. The patient before the operation weighed one hundred and eighteen pounds, was in poor health and much emaciated.

The pedicle was tied by a double (Chinese silk) ligature, cut short and dropped into the cavity. Silk ligatures were used wherever a ligature was necessary, all being cut short and returned. On the eighteenth day, a pouching at the lower end of the incision induced me to open the wound by a cut one-half inch in extent at that point, during the next fifteen days first blood clots, then pus in quantities diminishing from sixteen ounces per twenty-four hours was removed at this wound. Each of these fifteen days an antiseptic solution of common salt and carbolic acid in water, 96° F., was thrown into the cavity through this opening by means of a simple douche, acting by force of gravity from greater or less elevation of the vessel containing the fluid. The patient made a gradual but regular recovery. Pneumonia complicated the case during second and third week, and on the twenty-second day of December the patient was sent home cured. The patient was taken to my own home and nursed by my family, and this fact may be mentioned as an element in her cure. Now, only two months since the day of operation, the patient (a very poor woman) is able to do most of her household work.

On January 16th, 1876, sixty-eight days after the operation, the menses reappeared for the first time since the first pregnancy? A small umbilical-like protrusion of tissue remained at the seat of the last incision, and by close inspection two fine openings were discernible in this projection, neither of which was probed. From this point small quantities of blood have appeared for four successive periods, at the time of the regular

menstrual flux. Spencer Wells, *Diseases of the Ovaries*, p. 372, says this occurs in perhaps one-third of his clamp cases. He also says: "I have known this to occur where the ligature was used, and cut short." The patient at this writing, six months after the operation, has, to all appearances, entirely recovered.

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A Case of Temporo-parietal Fracture without Depression, involving both Anterior and Posterior Branches of the Middle Meningeal Artery, Intra-cranial Hemorrhage, and Death from Cerebral Compression. By S. S. TURNER, M.D., of Standing Rock Agency, Dakota.

At about 11 o'clock on the night of December 14, 1875, I was called to see W. McK., aged about 38, a native of Ireland, who, it was reported, had been shot only a few moments previously.

I found the man lying down, but he readily raised himself up in bed, and talked cheerfully. I examined him carefully for gunshot wound, but found none. The patient then stated that upon reflection he knew he was not shot, but was struck with a club, although two shots (distinctly heard by the writer) were fired at him at very close range.

In proof of the blow, I discovered the mark of the bludgeon, very distinct, extending from the inferior border of the lower maxilla, immediately in front of the angle, to the zygomatic arch, on the left side. There being as yet little or no tumefaction, and no abrasion, I did not discover that the injury extended to the temporal region, the hair concealing the evidences of contusion which were readily seen upon the face.

A careful examination of the jaw revealed no fracture, and, as the patient expressed himself as being "all right," I left him for the night. A slight impediment of speech was noticeable, a "thickness of tongue," such as is often observed in persons who have been drinking freely, but as the patient acknowledged having taken "a little something," I attributed the impediment to that something.

At about 9 o'clock the following morning, I was again summoned, the messenger alleging that the patient had fallen asleep about 3 o'clock, A. M. (between four and five hours after the receipt of the injury), and had slept ever since, and they were unable to wake him.

I found the man insensible, his pupils dilated and insensible to light, his breathing stertorous, his pulse full and strong, but apparently a little slower than normal. Examined the left side of the face and head, and found tumefaction of the soft parts extending from the lower border of the maxilla to the parietal eminence, seven or eight inches in extent. After the most careful examination, however, I was unable to detect any depression of bone, or any other local evidence of fracture.

Diagnosis: Fracture, either direct or by contrecoup, without depression, involving rupture of a bloodvessel, the symptoms being due to cerebral compression from hemorrhage within the cranium.

Feeling uncertain about the exact location of the hemorrhage, I hesitated about trephining, an operation always fraught with danger; and finding that the patient breathed easier when lying upon his right side, with head and shoulders elevated, I placed him in that position and applied cold over the left temporal region.

At 1 P. M., finding the face becoming more flushed, the pulse weaker, and the breathing growing more laborious from mucus accumulation in the air tubes, I called in consultation A. A. Surgeon F. A. Davis, U. S. A., and after examination it was decided to make an exploratory incision, upon the results of which, further procedure should depend.

By a crucial incision, the skull in the left temporal region was laid bare, revealing extensive fracture of the temporal and parietal bones, with, apparently, slight but uniform depression of the whole temporal region. The direction and extent of the principal lines of fracture may be indicated, with sufficient accuracy for all practical purposes, as follows:—

1. The superior or parietal fracture, beginning at the coronal suture half an inch above the superior border of the temporal bone, and curving backward under the parietal eminence for the distance of two and a half inches, then dropping down to the squamous suture. Total length of fracture, three and a half inches. Artery involved, the anterior branch of the middle meningeal.

2. Beginning at the spheno-temporal articulation, and following the groove of the posterior branch of the middle meningeal artery for the space of one inch, then passing upward to the superior border of the temporal bone. Total length of fracture, two inches. Artery involved, the posterior branch of the middle meningeal.

3. Situated three-fourths of an inch posterior and inferior to the second fracture, and following nearly the same direction, the point of greatest separation being one inch. Length of fracture, one inch and a half.

4. Other small fractures of one or both tables aggregated about three inches, giving a total of about ten linear inches of fracture, without detaching or depressing a single fragment of bone.

The use of the trephine was at once determined upon, and the instrument applied immediately above the line of the superior fracture, Dr. Davis operating at my request. The operation was protracted twenty or thirty minutes by the breaking of the trephine, and the consequent necessity of sending to the hospital for another; and the patient ceased to breathe just as the circle of bone was removed, and an extensive blood clot brought into view.

At 10 o'clock on the morning of the 16th, twenty hours after death, assisted by Dr. Davis, I made an examination of the cranium and its contents. A large amount of blood had oozed through the opening made by the trephine.

On removing the calvarium, an extensive clot was found to occupy the left temporo-parietal region, inducing marked indentation and compression of the left hemisphere. The clot was not weighed, but Dr. Davis and myself concurred in the estimate of six or eight ounces.

The vessels of the dura mater were not injected with the view of determining all the points of rupture, but the blood stains upon the fractured edges of bone indicated rupture of the arterial branches already named. The membrane itself was not ruptured, and the brain received no textural injury.

Surgeons will of course form their own opinions as to whether prompt operation, upon the discovery of the patient's condition in the morning, would have afforded him a chance of life, or whether the delay in operating was justified by the circumstances. I report the case briefly and without comment, solely for what it may be worth to surgeons of limited experience, who are liable to encounter a similar responsibility.

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Report of two Cases of Diseased Bones, treated by the Application of Villate's Solution. By Wm. T. Thackeray, M.D., of Lexington, Ky.

Case I. Edward C., æt. 48 years, a carpenter by profession, and a man of very irregular habits. On the 19th of June, 1875, while intoxi-

cated, he was blown by a wind-storm against a pile of bricks, and received a severe contusion of the right knee, upon the site of an old injury received twenty years previous—a cut by an adze.

I was called to see the case July 28, 1875, and found the patient very much reduced, and suffering excruciating pain in the knee-joint, which was much swollen; there was an opening about an inch above the upper margin of the patella, and through which was discharged a thin bloody pus and synovial fluid; the introduction of a probe revealed the bones concerned in the knee-joint almost entirely denuded of their coverings, and so soft and spongy that the probe could be easily pushed into their substance; there was a sinus extending down the outer side of the joint to the head of the tibia; this sinus I opened freely at its base.

The treatment was as follows: The limb was fixed on a double-inclined splint (made with sides like an ordinary fracture box), and swung by pulleys from the ceiling; a solution, consisting of Villate's solution[1] one part and water ten parts, was injected into the joint twice daily, sufficient being used to fill the cavity; the part was then enveloped in a large poultice of flaxseed meal.

The general treatment consisted of quinia sulph. grs. ij, with ol. morrhuæ, ℥ss t. i. d. Twice during the course of the treatment I was obliged to use hypnotics, once morphiæ sulph. gr. ¼, and once hydrate of chloral, grs. xx.

The intense pain was relieved after the injection had been used two or three times, and did not return except when the limb was suddenly moved; there was considerable nervous twitching of the muscles of the thigh, but these were controlled by a roller bandage.

September 23d the patient was enabled to go out on crutches, and at my last visit, December 12th, he could support his weight upon the diseased leg. At this date the patella had anchylosed to the fibula, but the joint was susceptible of considerable motion, the only difficulty noticed by the patient being a crackling sensation, which he described as being "like the cracking of the joints when pulled when he bent the leg," the bending being done by the voluntary contraction and extension of the muscles.

CASE II. James W., æt. 45 years, an hostler; caries of the sternal end of the left clavicle, there being an open ulcer exposing the diseased bone. The history of this case is unknown, further than that the trouble commenced with "a rising," as the patient expressed it, and that resulted in the condition of affairs existing when I saw it, eight weeks after the first signs of the disease.

July 30, 1875. Used Villate's solution one part, water ten parts, and applied this directly to the ulcer by means of a sponge and bandage, and kept the dressing continually wet with the solution; at the end of the third day all appearance of the disease had disappeared, and healthy granulations were beginning to form. At the end of two weeks the sore had healed entirely, and quite rough digital examination produced no inconvenience to the patient.

[1] The formula for this is as follows: R.—Sol. plumbi subacetatis, f℥iv; zinci sulphatis, cupri sulphatis, aa ℥ij; acetum vinum album, f℥xxvj.—M. It is absolutely necessary to use the white wine vinegar, as pyroligneous acid or any other vinegar acid makes an entirely different compound. The solution, when properly prepared, should be of a light-green opaque colour.

DOMESTIC SUMMARY.

Primary Sarcoma of the Iris, cured by Excision of the Tumour.—Dr. CHARLES J. KIPP, of Newark, N. J., reports (*Archives of Ophthal. and Otol.*, vol. v. No. 1, 1876) a case of true, white, spindle-celled sarcoma, attached to the inner lower quadrant of the iris by a broad base, and projecting into the anterior chamber, and almost completely covering the pupil. The patient was a robust man, aged 36. He first noticed the tumour twelve years ago as a reddish nodule, of about the size of a pin's head, near the lower pupillary margin of the iris of the right eye, but as it gave him no pain he paid no further attention to it. The growth of this tumour was exceedingly slow till about a month ago; since that time it has, however, grown more than in the preceding twelve years. During the last few weeks he has also noticed a gradual failure of sight, and has occasionally suffered from pain in his right eye.

The tumour with the adhering iris was removed through an incision in the sclero-corneal margin. On the thirteenth day all symptoms of irritation had disappeared, and on examination the sight of this eye was found to be equal to that of his left.

The patient was last seen about eighteen months after the operation, at which time the eye was entirely free from disease, and his general health was unimpaired.

The starting-point of the tumour was in all probability the stroma of the iris. With regard to the causes which produced the growth, nothing is known; the eye had never received an injury, and there was no evidence of sarcomatous disease in any other part of the body.

Dr. Kipp refers to three previously recorded cases of sarcoma of the eye, in all of which the eyeball was enucleated, and at the time he operated on his patient's eye he was not aware that a sarcomatous tumour of the eye had ever been excised, but since then he has learned from *Prof. Arlt's Operationslehre* (*Handbuch der Gesammten Augenheilkunde, redigirt von Prof. A. Graefe und Prof. Th. Saemisch*, Band iii., Cap. ii., page 420, published in 1874), that he knows of two cases in which such tumours were removed by a procedure analogous to an iridectomy. No history or description of the cases is given, but it is stated that they were last seen five or six weeks after the operation, and that at that time there were no signs of a relapse.

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Pistol Wound of the Heart, the Ball passing through both Ventricles and Right Auricle and lodging at the Root of the Right Lung; Death 38 months afterwards.—A remarkable case of this is reported (*The Clinic*, May 27th) by Dr. P. S. CONNER. The patient was a lad æt. 15, who was accidentally shot December 31, 1872. The ball entered over the sixth rib about one inch posterior to right lateral line, penetrated the thorax, and lodged. Hemorrhage was quite profuse at the time, but had ceased when Dr. C. saw him sixteen hours afterwards. Severe pleuro-pneumonia was soon developed, followed by pericarditis and endocarditis, but these subsided by the twentieth day and convalescence steadily went on. But examination showed extensive valvular lesions of the heart. There was marked anæmia with want of muscular strength, and this continued till his death, thirty-eight months after the injury. At the autopsy "the heart was seen to occupy a space much larger than normal. The pericardial sac was completely obliterated by adhesion of its layers, and the heart when removed measured twelve inches in its greatest circumference, and weighed twenty-one and one-half ounces. Old pleuritic adhesions existed on the right side, easily broken down except opposite the cicatrix of the external wound, where a band was found so firm that when the lung was removed from the chest the visceral layer of the pleura was stripped off over a space one-half inch in diameter.

"Some ℥iv of serum was in the pleural cavities and over a pint in the peritoneal cavity. The abdominal viscera were all in normal condition. Upon section the left lung and upper and middle lobes of the right lung

were found healthy. An incision made into the lower lobe through the denuded space already referred to, showed decided hepatization and imbedded in the lung tissue at a depth of half an inch, unencapsulated and with no evidences of specially diseased tissue about it, was a spicula of bone a half inch long, one-eighth inch wide, and a line in thickness, evidently a splinter from the rib. No cicatrix of a ball wound could be found, and attention was then directed to the heart. Upon the anterior surface of the right ventricle, one inch to right of the ventricular septum and an inch below the auriculo-ventricular, septum was an indurated patch involving the entire thickness of the wall with a very faint cicatricial marking externally. Upon opening the ventricles, there was shown a canal about one-fourth of an inch in length with smooth cicatricial orifices and lined by endothelium extending from immediately below the centre of the left posterior segment of the pulmonary valve to a point just between the anterior segments of the aortic valve. Upon the ventricular face of the left anterior segment of this valve, was a vegetation almost circular in shape, one-fourth inch in diameter. The posterior segment was torn, and its remaining surfaces covered with vegetations of large size, some not less than one inch in length. An opening with ragged edges, and covered with vegetations on both sides, established communication with the right auricle at a point about one-third the distance from the fibrous ring to the opening of the superior cava. Upon the posterior wall at the point opposite in the normal position of the parts was a very distinct somewhat stellate cicatricial patch. At the root of the lower lobe of the right lung, just below the bifurcation of the main bronchus of this lobe, the ball was found lodged, completely encapsulated. Measurements made, show that it is conical, three-eighths inch long, one-fourth inch in diameter."

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Large Aneurism of Femoral Artery cured by Galvano-puncture.—Dr. F. M. HAUCK reports (*St. Louis Med. and Surg. Journ.*, April, 1876) the following interesting case of this.

H. S., aged 40, presented himself for treatment for a tumour in the middle of the left thigh on the inner side. The tumour was tense to the touch, immovable, and indistinctly fluctuating; but, on the other hand, a distinct pulsation was felt, and by auscultation a strong aneurismal murmur could be heard. The patient could give no information about the cause of the tumour.

A pad and afterwards digital compression were unavailingly applied. It was then concluded to use galvano-puncture. Three platinum needles were inserted half an inch from each other into one side of the sac, to the depth of two inches, and were connected with the negative pole, completing the circuit by attaching the positive pole to a metallic plate placed above, or moved about the surface of the tumour. The constant current was employed twenty minutes. On withdrawing the needles considerable resistance was remarked, indicating that a coagulum had formed around them. In fact, two days afterward, when the tumour had become softer, three firm masses could be felt, each the size of a pigeon's egg. Two of these masses appeared to be adherent to the wall; the third fluctuated in the yet fluid blood. The pulsation and murmur were decidedly less. A not inconsiderable inflammation set in around the punctures, not, however, accompanied with much pain. Five days after the first sitting, the same procedure was tried, except that the needles were thrust into the other side of the tumour. Eighteen hours afterward, no pulsation or murmur could be detected, but again inflammation of the skin existed, the patient complaining this time of very severe pain. Ice-poultices were ordered, which were, perhaps, too energetically applied, and the next morning a round spot was found, two and a half inches in diameter, at the summit of the tumour, very suspicuously red. Diluted carbolic acid was used, to prevent the threatened gangrene of the skin, but without success, for after a few days all that portion of skin sloughed away, disclosing a firm dark-brown coagulum, over which was stretched the saphenous nerve. It was this nerve which, constantly stretched by a large, hard, round mass of blood, had caused the pain in the knee. It remained a few days, when it also broke away. And the coagulum thus exposed was gradually removed—about three ounces a day. The resulting cavity was filled with charpie-balls dipped in a solution of salicylic acid. This treatment

was continued for six days, when the coagulum was removed in all directions. It did not weigh less than two pounds.

Five months after the operation the wound was entirely healed, leaving a small, deep contracted scar, a slight stiffness of the knee, and a slightly marked anæsthesia of the inner side of the knee and lower portion of the thigh.

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Case of Spontaneous Version by the Pelvis, under what seemed Impossible Conditions.—Dr. J. C. Faget records (*New Orleans Med. and Surg. Journal*, May, 1876) the following case of this:—

On the 9th of March, 1876, Dr. Bezou was called to a robust woman, aged 42, a native of Gascony, who had been for over two days in labour, although it was her fifth confinement, but who was within two or three weeks of full term. The amniotic fluid had escaped from the beginning, and the arm of the child was hanging out. A midwife had charge of the case so far, and maintained that she had in no way interfered, that this arm had dropped there of itself. But the enormous swelling of the arm, and a *fracture of the humerus*, bore strong evidence to the contrary. Under such circumstances our confrère thought it advisable to call some one to share his responsibilities, and I was sent for.

I proceeded to a thorough examination at once, in order to ascertain the position of the fœtus. The woman was placed across the bed, and under full influence of chloroform. I introduced easily one hand into the uterus, behind the fœtus, in the direction of the concavity of sacrum, whilst the other was applied over the abdomen. I thus recognized that the back was behind, and the head in the right iliac fossa. In fact it was the right shoulder that occupied the inferior pelvis, but not alone; a portion of the thorax as proved by the ribs which could be felt distinctly, also entered into the composition of this complex mass, forming a cone with its base upwards. This confused mass was deeply engaged and impacted in the inferior pelvis.

I had to withdraw my hand after a few minutes, owing to the powerful uterine contractions; but I had arrived at the knowledge of the position, which was my main object; I remained also convinced that ergot had been given, although positively denied by the midwife.

Dr. Bezou also came to the same conclusions. He thought for a moment that he felt a foot; but he had to withdraw his hand on account of the violent contractions of the womb, although chloroform had been continued in such full doses that *all the voluntary muscles were in complete resolution.*

The inferior extremity of the fœtus being on the left (*right cephalic iliac, abdomino-anterior*), I had the woman turned on her left, and, placing myself behind her, I introduced my right hand, directing it anteriorly and, as much as possible, towards the left illiac fossa. But I found it entirely impossible to bring my hand in front of the fœtus, probably because its abdomen was somewhat pendulous. I had to turn my right hand over and slide it along the back of the fœtus, in order to proceed and reach the pelvis. Having thus some purchase on the inferior extremity of the fœtus, I had the woman turned on her back, so as to try to act at the same time and inversely over the superior, or scapular extremity of the fœtal trunk, with my left hand. I wished to apply in this particular case the *bipolar* version, so well described by Prof. Barnes, of London. I brought together my left index and median fingers, and firmly applied them in the right axilla of the fœtus; but I tried in vain, either simultaneously or successively, to move in an inverse direction one or the other extremity of the lever represented by the fœtal ovoid; nothing moved.

We then—Dr. Bezou and myself—stepped into the adjoining room to consult over the case, and came to the conclusion that our duty compelled us to interfere, and not to leave the delivery of the woman to the efforts of nature only.

The fœtus had certainly been dead for several hours, and we thought decapitation had to be resorted to; but previous to proceeding to the operation we determined to make another examination.

But nature had not been at rest. The arm was no more to be seen, and the breech was making its way through the vulva. I had only to support, and the work was done with wonderful ease. So that nature, left to itself during the fifteen minutes of our deliberation, had accomplished turning, which art with hours of energetic intervention had failed to accomplish.

UNIVERSITY OF PENNSYLVANIA.

MEDICAL DEPARTMENT.

Thirty-Sixth and Locust Streets, Philadelphia.

One Hundred and Eleventh Annual Session, 1876-77.

PROFESSORS.

GEORGE B. WOOD, M.D., LL.D., Emeritus Professor of Theory and Practice of Medicine.
HENRY H. SMITH, M.D., Emeritus Professor of Medicine.
JOSEPH CARSON, M.D., Emeritus Professor of Materia Medica and Pharmacy.
ROBERT E. ROGERS, M.D., Professor of Chemistry.
JOSEPH LEIDY, M.D., LL.D., Professor of Anatomy.
FRANCIS G. SMITH, M.D., Professor of the Institutes of Medicine.
RICHARD A. F. PENROSE, M.D., Professor of Obstetrics and Diseases of Women and Children.
ALFRED STILLÉ, M.D., Professor of Theory and Practice of Medicine.
D. HAYES AGNEW, M.D., LL.D., Professor of Surgery and Clinical Surgery.
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WILLIAM PEPPER, M.D., Professor of Clinical Medicine.
JOHN NEILL, M.D., Professor of Clinical Surgery.
WILLIAM GOODELL, M.D., Clinical Professor of Diseases of Women and Children.
JAMES TYSON, M.D., Professor of General Pathology and Morbid Anatomy.
WILLIAM F. NORRIS, M.D., Clinical Professor of Diseases of the Eye.
GEORGE STRAWBRIDGE, M.D., Clinical Professor of Diseases of the Ear.
HORATIO C. WOOD, Jr., M.D., Clinical Professor of Nervous Diseases.
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H. LENOX HODGE, M.D., Demonstrator of Anatomy.
CHARLES T. HUNTER, M.D., Demonstrator of Surgery.
GEORGE M. WARD, M.D., Demonstrator of Practical Chemistry.
ISAAC OTT, M.D., Demonstrator of Experimental Physiology.

The Medical Faculty occupy an elegant and commodious building which affords ample space for Dissecting and Operating Rooms, and for their valuable Museum, Apparatus, and Library, and secures superior advantages to the student, in health and facility of study. Didactic Lectures and Laboratory Instruction are given in this building, and Daily Clinics in the UNIVERSITY HOSPITAL and in the PHILADELPHIA HOSPITAL, which are adjacent. Clinical instruction continues during the whole year, except July and August.

Besides the obligatory study of Practical Anatomy, practical courses are accessible, during the winter and spring, to students in Operative Surgery, Chemistry, Physiology, Comparative Anatomy, Clinical Medicine, Surgery, and Obstetrics.

STUDENTS WHO HAVE ATTENDED TWO FULL COURSES OF LECTURES ON ANATOMY, CHEMISTRY, MATERIA MEDICA, AND THE INSTITUTES OF MEDICINE, MAY BE EXAMINED ON THOSE SUBJECTS AT THE END OF THE SECOND COURSE, AND, IF APPROVED, WILL, AT THE END OF THEIR THIRD COURSE, BE EXAMINED ONLY ON THEORY AND PRACTICE OF MEDICINE, SURGERY, AND OBSTETRICS.

THE RECENT ADDITION BY THE BOARD OF TRUSTEES OF SEVERAL NEW PROFESSORS TO THE FACULTY, WILL IMPOSE ON THE STUDENT NO INCREASE OF EXPENSE OR DURATION OF STUDY, OR OTHER EXAMINATIONS FOR THE DEGREE THAN HAVE HITHERTO BEEN REQUIRED.

Matriculates in the Medical Department are entitled to attend, during the Spring and Summer, the lectures of the Auxiliary Faculty on Zoology and Comparative Anatomy, by H. ALLEN, M.D.; on Botany, by H. C. WOOD, Jr., M.D.; on Hygiene, by H. HARTSHORNE, M.D.; on Medical Jurisprudence and Toxicology, by J. J. REESE, M.D.; and on Mineralogy and Geology, by S. B. HOWELL, M.D.

The Lectures of the Session of 1876–77 will commence on the first Monday (2d) of October, and terminate on the last day of February.

FEES.—For one full course of Lectures, $140. For each professor's ticket for one course, $20. Matriculation fee (paid once only), $5. These fees are payable in advance. Graduation fee, $30.

Letters of inquiry should be addressed to

ROBERT E. ROGERS, M.D., DEAN,
P. O. Box 2838 *Philadelphia.*

JEFFERSON MEDICAL COLLEGE.

PHILADELPHIA.

The Fifty-Second Session of the Jefferson Medical College will begin on Monday, 2d October, 1876, and will continue until 1st of March, 1877. PRELIMINARY LECTURES will be held from Monday, 4th September.

PROFESSORS.

JOSEPH PANCOAST, M.D., General, Descriptive, and Surgical Anatomy (*Emeritus.*)
SAMUEL D. GROSS, M.D., LL.D., D.C.L. Oxon., Institutes and Practice of Surgery.
ELLERSLIE WALLACE, M.D., Obstetrics and Diseases of Women and Children.
B. HOWARD RAND, M.D., Chemistry.
JOHN B BIDDLE, M.D., Materia Medica and General Therapeutics.
J. AITKEN MEIGS, M.D., Institutes of Medicine and Medical Jurisprudence.
J. M. DA COSTA, M.D., Practice of Medicine.
WILLIAM H. PANCOAST, M.D., General, Descriptive, and Surgical Anatomy.

Special courses are also given on the following subjects:—

TOXICOLOGY, by Prof. RAND.
DISEASES OF THE CRANIAL NERVES, by Prof. MEIGS.
DERMATOLOGY and SYPHILITIC DISEASES, by Dr. F. F. MAURY, one of the Surgeons to the Philadelphia Hospital.
PATHOLOGICAL ANATOMY, by Dr. MORRIS LONGSTRETH, Pathologist to the Pennsylvania Hospital.
OPERATIVE SURGERY, with Operations on the Cadaver, by Dr. JOHN H. BRINTON, one of the Surgeons to the Philadelphia Hospital.
OPHTHALMOLOGY and OTOLOGY are treated both clinically and didactically during the entire course, by Dr. WILLIAM THOMSON, one of the Surgeons to the Wills Ophthalmic Hospital.
LARYNGOSCOPY, with DISEASES OF THE THROAT, by Dr. J SOLIS-COHEN.
The DEMONSTRATOR of Surgery, Dr. J. EWING MEARS, delivers a distinct course of Demonstrations of Surgery, with illustrations on the Cadaver, during the entire session.
PRACTICAL CHEMISTRY with *Qualitative* and *Quantitative Analysis*, the *Examination of Normal and Abnormal Products*, and *Manipulation* by the Student himself, is taught by the DEMONSTRATOR of Chemistry, Dr. W. H. GREENE.
PRACTICAL ANATOMY and MORBID ANATOMY. For the study of Practical Anatomy, a full supply of material is furnished *free of charge*. The Anatomical Rooms are spacious and provided with every convenience, and not only are subjects for dissection to be had without expense, but there are no incidental or extra charges of any kind. Demonstrator of Anatomy, T. H. ANDREWS, M.D.

CLINICAL INSTRUCTION is given daily at the College. The SURGICAL CLINIC is held on Wednesdays and Saturdays, by Professors GROSS, JOSEPH PANCOAST, and W. H. PANCOAST. The MEDICAL CLINIC, on Mondays and Thursdays, by Profs. DA COSTA, BIDDLE, and MEIGS. The CLINIC of Diseases of Women and Children, on Tuesdays, by Prof WALLACE. The CLINIC of Diseases of the Eye and Ear, on Fridays, by Dr. THOMSON. The PENNSYLVANIA HOSPITAL is near the College, and the corps of lecturers includes Profs. DA COSTA and MEIGS. Prof. PANCOAST and Drs. MAURY and BRINTON are connected with the staff of the PHILADELPHIA HOSPITAL.

THE NEW HOSPITAL OF THE JEFFERSON MEDICAL COLLEGE was begun in November, 1875, and will be completed by the close of the present summer; and it is confidently anticipated that it will be in full operation early in the ensuing session. It is situated in a spacious lot immediately west of the College, bounded on three sides by streets and a wide space on the fourth side, and will afford accommodation for at least one hundred beds. It is constructed according to the most approved principles of hospital architecture, and will be furnished with every necessary appliance for heating, ventilation, etc. A spacious amphitheatre, seating more than 500 students, is provided for Clinical Lectures, which, with daily visits to the wards, will form part of the regular services of the College.

FEES:

For a full Course	$140
Matriculation Fee (paid once only)	5
Graduation Fee	30

A SUMMER COURSE of Supplementary Lectures is given, beginning 26th March, 1877, and extending through the months of April, May, and June. There is no additional charge for this Course to Matriculates of the College, except a registration fee of five dollars.

The Annual Announcement will be sent on application to

J. B. BIDDLE, M.D.,
Dean.

BELLEVUE HOSPITAL MEDICAL COLLEGE—CITY OF NEW YORK.

SESSIONS OF 1876–77.

THE Collegiate year in this Institution embraces a Preliminary Autumnal Term, the regular Winter Session, and a Spring Session.

The Preliminary Autumnal Term for 1876–77 will open on Wednesday, September 13, 1876, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects, and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students expecting to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term Clinical and Didactic Lectures will be given in precisely the same number and order as in the Regular Session.*

The Regular Session will commence on Wednesday, September 27, 1876, and end about the 1st of March, 1877.

FACULTY

ISAAC E. TAYLOR, M.D., Emeritus Professor of Obstetrics and Diseases of Women, and President of the Faculty.
JAMES R. WOOD, M.D., LL.D., Emeritus Professor of Surgery.
FORDYCE BARKER, M.D., Professor of Clinical Midwifery and Diseases of Women.
AUSTIN FLINT, M.D., Professor of the Principles and Practice of Medicine and Clinical Medicine.
W. H. VAN BUREN, M.D., Professor of Principles and Practice of Surgery, Diseases of Genito-Urinary System, and Clinical Surgery.
LEWIS A. SAYRE, M.D., Professor of Orthopedic Surgery, Fractures and Dislocations, and Clinical Surgery.
ALEXANDER B. MOTT, M.D., Professor of Clinical and Operative Surgery.
WILLIAM T. LUSK, M.D., Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.
EDMUND R. PEASLEE, M.D., LL.D., Professor of Gynæcology.
WILLIAM M. POLK, M.D., Professor of Materia Medica and Therapeutics, and Clinical Medicine.
AUSTIN FLINT, Jr., M.D., Professor of Physiology and Physiological Anatomy, and Secretary of the Faculty.
ALPHEUS B. CROSBY, M.D., Professor of General, Descriptive, and Surgical Anatomy.
R. OGDEN DOREMUS, M.D., LL.D., Professor of Chemistry and Toxicology.
EDWARD G. JANEWAY, M.D., Professor of Pathological Anatomy and Histology, Diseases of the Nervous System, and Clinical Medicine.

Professors of Special Departments, etc.

HENRY D. NOYES, M.D., Professor of Ophthalmology and Otology.
JOHN P. GRAY, M.D., LL.D., Prof. of Psychological Medicine and Medical Jurisprudence.
EDWARD L. KEYES, M.D., Professor of Dermatology, and Adjunct to the Chair of Principles of Surgery.
EDWARD G. JANEWAY, M.D., Prof. of Practical Anatomy. (Demonstrator of Anatomy.)
LEROY MILTON YALE, M.D., Lecturer Adjunct upon Orthopedic Surgery.
A. A. SMITH, M.D., Lecturer Adjunct upon Clinical Medicine.

A distinctive feature of the method of instruction in this College, is the union of clinical and didactic teaching. All the lectures are given within the hospital grounds. During the Regular Winter Session, in addition to four didactic lectures on every week-day, except Saturday, two or three hours are daily allotted to clinical instruction.

The Spring Session consists chiefly of Recitations from Text-books. This term continues from the first of March to the first of June. During this Session, daily recitations in all the departments are held by a corps of examiners appointed by the regular Faculty. Regular Clinics are also given in the Hospital and College building.

Fees for the Regular Session.

Fees for Tickets to all the Lectures during the Preliminary and Regular Term, including Clinical Lectures	$140 00
Matriculation Fee	5 00
Demonstrator's Ticket (including material for dissection)	10 00
Graduation Fee	30 00

Fees for the Spring Session.

Matriculation (Ticket good for the following Winter)	$5 00
Recitations, Clinics, and Lectures	35 00
Dissection (Ticket good for the following Winter)	10 00

Students who have attended two full Winter courses of lectures may be examined at the end of their second course upon Materia Medica, Physiology, Anatomy, and Chemistry, and, if successful, they will be examined at the end of their third course upon Practice of Medicine, Surgery, and Obstetrics only.

For the Annual Circular and Catalogue, giving regulations for graduation and other information, address Prof. AUSTIN FLINT, Jr., Secretary Bellevue Hospital Medical College.

HARVARD UNIVERSITY.

MEDICAL DEPARTMENT—Boston, Mass.

NINETY-THIRD ANNUAL ANNOUNCEMENT. (1876-77.)

FACULTY OF MEDICINE.

Charles W. Eliot, LL.D., President.
Calvin Ellis, M.D., Prof. of Clinical Medicine, Dean.
John B. S. Jackson, M.D., Prof. of Pathol. Anat.
Oliver W. Holmes, M.D., Prof. of Anatomy.
Henry J. Bigelow, M.D., Professor of Surgery.
John E. Tyler, M.D., Prof. of Mental Diseases.
Charles E Buckingham, M.D., Prof. of Obstetrics and Medical Jurisprudence.
Francis Minot, M.D., Hersey Professor of the Theory and Practice of Medicine.
John P. Reynolds, M.D., Instructor in Obstetrics.
Henry W. Williams, M.D., Professor of Ophthalmology.
David W. Cheever, M.D., Professor of Clinical Surgery.
James C. White, M.D., Prof. of Dermatology.
Robert T. Edes, M.D., Professor of Materia Medica.
Henry P. Bowditch, M.D., Assistant Professor of Physiology.
Charles B Porter, M.D., Demonstrator of Anatomy, and Instructor in Surgery.
Frederick I. Knight, M.D., Instructor in Percussion, Auscultation, and Laryngoscopy.
J. Collins Warren, M.D., Instructor in Surgery.
Reginald H. Fitz, M.D., Assistant Professor of Pathological Anatomy.
Wm. L. Richardson, M.D., Instructor in Clinical Obstetrics.
Thomas Dwight, Jr., M.D., Instructor in Histology.
Edward S. Wood, M.D., Assistant Professor of Chemistry.
Henry H. A. Beach, M.D., Assistant Demonstrator of Anatomy.
William B. Hills, M.D., Instructor in Chemistry.

OTHER INSTRUCTORS.

George H. F. Markoe, Instructor in Materia Medica.
Frank W. Draper, M.D., Lecturer on Hygiene.

THE FOLLOWING GENTLEMEN GIVE SPECIAL CLINICAL INSTRUCTION.

Francis B. Greenough, M.D., and Edward Wigglesworth, Jr., M.D., in Syphilis.
John O. Green, M.D., and Clarence J. Blake, M.D., in Otology.
James R. Chadwick, M.D., and Wm. H. Baker, M.D., in Diseases of Women.
Charles P. Putnam, M.D., and Joseph P. Oliver, M.D., in Diseases of Children.
Samuel G. Webber, M.D., and James J. Putnam, M.D., in Diseases of the Nervous System.

The plan of study was radically changed in 1871.* Instruction is given by lectures, recitations, clinical teaching, and practical exercises, distributed throughout the academic year. This year begins September 28, 1876, and ends on the last Wednesday in June, 1877. It is divided into two equal terms, either of which is more than equivalent to the former "Winter Session," as regards the amount and character of the instruction. The course of instruction has been greatly enlarged, so as to extend over three years, and has been so arranged as to carry the student progressively and systematically from one subject to another in a just and natural order. In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory work is largely substituted for, or added to, the usual methods of instruction.

Instead of the customary oral examination for the degree of Doctor of Medicine, held at the end of the three years' period of study, a series of written examinations on all the main subjects of medical instruction has been distributed through the whole three years; and every candidate for the degree must pass a satisfactory examination in every one of the principal departments of medical instruction during his period of study.

DIVISION OF STUDIES.

For the First Year—Anatomy, Physiology, and General Chemistry.
For the Second Year—Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, Surgery, and Clinical Surgery.
For the Third Year—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

Students are divided into three classes, according to their time of study and proficiency. Students who began their professional studies elsewhere may be admitted to advanced standing; but all persons who apply for admission to the second or third year's class must pass an examination in the branches already pursued by the class to which they seek admission. Examinations are held in the following order:—

At the end of the first year—Anatomy, Physiology, and General Chemistry.
End of second year—Medical Chemistry, Materia Medica, and Pathological Anatomy.
End of third year—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

Examinations are also held before the opening of the School, beginning September 25th.

Students who do not intend to offer themselves for a degree will also be received at any part of the course, for one term or more. Any student may obtain, without an examination, a certificate of his period of connection with the school.

Requirements for a Degree.—Every candidate must be twenty-one years of age; must have studied medicine three full years, have spent at least one continuous year at this school, have passed the required examinations, and have presented a thesis.

Course for Graduates.—For the purpose of affording to those already Graduates of Medicine additional facilities for pursuing clinical, laboratory, and other studies, in such subjects as may specially interest them, the Faculty has established a course which comprises the following branches: Histology; Physiology; Medical Chemistry; Pathological Anatomy; Surgery; Auscultation, Percussion, and Laryngoscopy; Ophthalmology; Dermatology; Syphilis; Psychological Medicine; Otology; Electro-therapeutics; Gynæcology; and Obstetrics.

Single branches may be pursued, and on payment of the full fee also the privilege of attending

* In and after September, 1877, an examination on entrance will be required. For particulars see Catalogue.

any of the other exercises of the Medical School, the use of the laboratories and library, and all other rights accorded by the University will be granted. Graduates of other Medical Schools who may desire to obtain the degree of M.D. at this University, will be admitted to examination for this degree after a year's study in the Graduates' Course.

FEES.—For Matriculation, $5; for the Year, $200; for one Term alone, $120; for Graduation, $30. For Graduates' Course, the fee for one year is $200; for one Term, $120; and for single courses such fees as are specified in the Catalogue. Payment in advance.

Members of any one department of Harvard University have a right to attend lectures and recitations in any other department without paying additional fees.

For further information, or Catalogue, address

DR. R. H. FITZ, *Sec'y*, 108 Boylston St., Boston, Mass.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF LOUISIANA—NEW ORLEANS.

MEDICAL FACULTY.

A. H. CENAS, M.D., Emeritus Professor of Obstetrics and Diseases of Women and Children.

JAMES JONES, M.D., Professor of Obstetrics and Diseases of Women and Children.

T. G. RICHARDSON, M.D., Professor of General and Clinical Surgery.

SAMUEL M. BEMISS, M.D., Professor of the Theory and Practice of Medicine and Clinical Medicine.

STANFORD E. CHAILLÉ, M.D., Professor of Physiology and Pathological Anatomy.

JOSEPH JONES, M.D., Professor of Chemistry and Clinical Medicine.

SAMUEL LOGAN, M.D., Professor of Anatomy and Clinical Surgery.

ERNEST S. LEWIS, M.D., Professor of Obstetrics and Diseases of Women and Children.

THOMAS J. HEARD, M.D., Professor of Materia Medica and Therapeutics and Clinical Medicine.

ALBERT MILES, Demonstrator of Anatomy.

The next annual course of instruction in this Department (now in the forty-third year of its existence) will commence on Monday, the 17th day of November, 1876, and terminate on the third Saturday of March, 1877. Preliminary Lectures on Clinical Medicine and Surgery will be delivered in the amphitheatre of the Charity Hospital, beginning on the 20th of October, without any charge to students.

The means of teaching now at the command of the Faculty are unsurpassed in the United States. Special attention is called to the opportunities presented for

CLINICAL INSTRUCTION.

The act establishing the University of Louisiana gives the Professors of the Medical Department the use of the great Charity Hospital as a school of practical instruction.

The Charity Hospital contains nearly 700 beds, and received, during the last year, more than *four thousand* patients. Its advantages for professional study are unequalled by any similar institution in this country. The Medical, Surgical, and Obstetric Wards are visited by the respective professors in charge daily, from eight to ten o'clock A. M., at which time all the students are expected to attend and familiarize themselves, *at the bedside of the patients*, with the diagnosis and treatment of all forms of injury and disease.

The regular lectures at the hospital, on Clinical Medicine by Professors Bemiss, Heard, and Joseph Jones, Surgery by Professors Richardson and Logan, Diseases of Women and Children by Professor Lewis, and Special Pathological Anatomy by Professor Chaillé, will be delivered in the amphitheatre on Monday, Wednesday, Thursday, and Saturday, from 10 to 12 o'clock A. M.

The administration of the hospital elect annually twelve resident students, who are maintained in the institution.

TERMS.

For the Tickets of all the Professors	$140 00
For the Ticket of Practical Anatomy	10 00
Matriculation Fee	5 00
Graduation Fee	30 00

Graduates of other recognized schools may attend all the lectures upon payment of the matriculation fee; but they will not be admitted as candidates for the Diploma of the University except upon the terms required of second course students. All fees payable in advance.

For further information, address T. G. RICHARDSON, M.D., *Dean*.

ALBANY MEDICAL COLLEGE—MEDICAL DEPARTMENT OF UNION UNIVERSITY.

FACULTY OF MEDICINE.

THOMAS HUN, M.D., Dean of the Faculty, and Emeritus Professor of the Institutes of Medicine.
J. V. P. QUACKENBUSH, M D., Professor of Obstetrics.
S. O. VANDERPOEL, M.D., Professor of Theory and Practice and Clinical Medicine.
JOHN SWINBURNE, M.D., Professor of Fractures and Dislocations and Clinical Surgery.
ALBERT VANDERVEER, M.D., Professor of the Principles and Practice of Surgery.
JACOB S. MOSHER, M.D., Registrar, and Professor of Medical Jurisprudence and Hygiene.
MAURICE PERKINS, M.D., Professor of Chemical Philosophy and Organic Chemistry.
JOHN M. BIGELOW, M.D., Professor of Materia Medica and Therapeutics.
LEWIS BALCH, M.D., Professor of Anatomy.
SAMUEL B. WARD, M.D., Professor of Surgical Pathology and Operative Surgery.
JOHN P. GRAY, M.D., LL.D., Professor of Psychological Medicine.
EDWARD R. HUN, M.D., Professor of Diseases of the Nervous System.
JAMES P. BOYD, Jr., M D., Professor of Diseases of Women and Children.
WILLIS G. TUCKER, M.D., Professor of Inorganic and Analytical Chemistry.
WILLIAM HAILES, M.D., Professor of Histology and Pathological Anatomy.
CYRUS S. MERRILL, M.D., Professor of Ophthalmology.
HARRISON E. WEBSTER, A.M., Lecturer on Physiology.
HENRY MARCH, M.D., Curator of the Museum.
EUGENE VAN SLYKE, M.D., Demonstrator of Anatomy.

THE METHOD OF INSTRUCTION.

The aim of the Faculty is to make the course practical, useful, and scientific. It does this by combining with didactic lectures, clinical lectures, recitations, practical work in the laboratory and dissecting-room, and by the examination and diagnosis by students of cases assigned them, and by reports and criticisms of the same by the class and the professors.

HOSPITAL ADVANTAGES.

The Albany Hospital and St. Peter's Hospital, together with the Eye and Ear Infirmary and the Dispensaries connected with each, are, by the regulations of their governing boards, made available for clinical purposes to all its students.

Three or more Clinical Lectures are given weekly, and all the surgical operations of importance are performed before the class in the admirably lighted amphitheatre of the hospital.

The Faculty are well aware of the value of Clinical Instruction to the medical student, and endeavour to make this an especial feature of the course.

The appointments to positions in the Hospital as house physician and surgeon and apothecary are annually made, and are competed for by members of the graduating class.

FEES AND REGULATIONS.

The matriculation fee is $5. The fee for a full course of one year, $100. Perpetual ticket, $150. Demonstrator's ticket, $5. Laboratory ticket, $10.

The graduation fee is $25, which must be paid to the Registrar before the candidate can be admitted to an examination.

Students who have attended two full courses of lectures at other medical institutions will be required to pay $25, and the matriculation fee.

LECTURE TERMS.

The regular term or course of lectures in the Albany Medical College begins on the first Tuesday of September in each year, and continues twenty weeks.

Five or more lectures are given daily during the term, with the exceptions of Saturdays and Sundays.

A spring course of lectures will begin on the first Tuesday of April next, and continue eight weeks.

For catalogues and further information, address

JACOB S. MOSHER, M.D., *Registrar*, Albany, N. Y.

DETROIT MEDICAL COLLEGE.

Sessions of 1876-77.

FACULTY.

PRELIMINARY AND REGULAR SESSIONS.

EDWARD W. JENKS, M.D., President, Professor of Medical and Surgical Diseases of Women and Obstetrics.

GEORGE P. ANDREWS, M.D., Professor of Principles and Practice of Medicine.

JAMES F. NOYES, M.D., Professor of Ophthalmology and Aural Surgery.

ALBERT B. LYONS, M.D., Professor of Chemistry and Toxicology.

THEODORE A. McGRAW, M.D., Treasurer, Professor of Principles and Practice of Surgery and Clinical Surgery.

C. B. GILBERT, M.D., Professor of Materia Medica, Therapeutics, and Clinical Diseases of Children.

N. W. WEBBER, M.D., Professor of General and Descriptive Anatomy and Clinical Surgery.

LEARTUS CONNOR, M.D., Secretary, Professor of Physiology and Clinical Medicine.

RECITATION SESSION.

H. O. WALKER, M.D., Lecturer on Genito-Urinary System and Rectum.

DANIEL LAFERTE, M.D., (Demonstrator of Anatomy) and Lecturer on Orthopædic Surgery and Tumours.

J. G. JOHNSON, M.D., Lecturer on Diseases of Mind and Nervous System.

DAVID INGLIS, M.D., Lecturer on Histology, Curator of Museum and Librarian.

J. H. CARSTENS, M.D., Lecturer on Differential Diagnosis.

E. L. SHURLY, M.D., Lecturer on Diseases of Throat and Lungs.

F. A. SPALDING, M.D., Lecturer on Diseases of Skin.

C. C. YEMANS, M.D., Lecturer on Chemistry.

The Collegiate Year is divided into three sessions.

PRELIMINARY SESSION opens Wednesday, September 6th, 1876, and continues one month. The Clinics are held and the Lectures delivered by the Professors of the regular Faculty, and in the same order and frequency as during the Winter Term. Opportunity is given to dissect or work in the Chemical Laboratory.

The REGULAR SESSION opens Wednesday, October 4th, 1876, and continues five months. During this term all the branches of *General Medicine* and *Surgery*, both scientific and practical, are taught with care and thoroughness. All students are daily examined on the subjects of the lectures and on their dissecting and laboratory work.

Senior students have *daily practice* in the *art of examining patients*, in forming their own diagnosis, prognosis, and treatment. As this is done under the direction of the professor holding each clinic, and in the presence of the class, it constitutes an invaluable course of training.

The RECITATION SESSION begins second Wednesday in March, 1877, and continues four months. Daily during this term there will be held a lecture, recitation, and one or two clinics. The lectures will be upon special subjects of medical or surgical interest.

The recitations will embrace the general subjects of the Regular Session, viz., Anatomy, Surgery, Midwifery, Diseases of Women, Physiology, Practice of Medicine, Materia Medica, and Chemistry.

Though the Recitation and Preliminary Sessions are optional, it is hoped that all who can will avail themselves of their manifest advantages in supplementing the regular winter course.

Three Hospitals—Harper's, St. Mary's, and St. Luke's—with two large free dispensaries, afford an abundance of clinical material for illustrative and practical teaching.

All lectures are delivered on Hospital grounds. The *peculiar feature* of this school is the *intimate union* between its *laboratory*, *clinical*, and *didactic* instruction.

FEES.—For Preliminary and Regular Sessions: Matriculation $5. Hospital Fees (good for one year), $10. Lecture Fees, $40. Graduation, $25. Lecture fees to third course students, $25.

For the Recitation Term the Lecture fees are $10, to those who attend the other courses. All others are required to matriculate and take out the Hospital tickets.

All fees payable in advance to the *Secretary*.

Board and Rooms can be obtained at low rates—according to accommodations—from $3 to $5 per week. Announcement and Catalogue, or any further information which may be desired, can be promptly obtained by addressing

LEARTUS CONNOR, M.D., *Secretary*,
94 Cass St., Detroit, Mich.